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AEROJET-GENERAL SUPERFUND SITE

SECOND COMMUNITY MEETING

WEDNESDAY, JANUARY 17, 2001

6:00 P.M.

MILLS MIDDLE SCHOOL

RANCHO CORDOVA, CALIFORNIA

REPORTED BY:

ESTHER F. WIATRE  
CSR NO. 1564

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1 APPEARANCES

2 MODERATOR:

3 DON HODGE

4 PANEL:

5 CHARLES BERREY

STAN SMUCKER

6 ALEX MACDONALD

ED CARGILE

7 MARILYN UNDERWOOD

KARLA BRASAEMLE

8

EPA REGION 9 CHIEF:

9

KATHI MOORE

10

AUDIENCE:

11

LAURETTE LAURENT

12

ELLEN DOVE

JIM EMBREE

13

ELLIC SOMER

SANDY SMOLEY

14

PETER ROONEY

MARK EMMERSON

15

ROBERT SMITH

NORA KOSTELNIK

16

LARRY LADD

GEORGE WALGELL

17

MICHAEL RASLER

MARLA ARNOLD

18

TOD KERSHAW

JANIS HEPLE

19

ROSEMARY YOUNTS

WILSON HEAD

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RANCHO CORDOVA, CALIFORNIA

2 WEDNESDAY, JANUARY 17, 2001, 6:00 P.M.

3 -oOo-

4 MR. HODGE: I want to welcome you all and thank you  
5 for coming to this meeting tonight. I am Don Hodge. I am  
6 the Community Involvement Coordinator for the U.S. EPA who  
7 is working on this site, and I will introduce the rest of  
8 our panel of experts up here in a little bit.

9 I want to talk a couple of minutes about the  
10 organization of the meeting. First of all, I will be trying  
11 to facilitate the meeting and kind of keep us on track.  
12 They are laughing at me already. They were here for the  
13 last meeting.

14 The purpose of this meeting is - there are actually  
15 two purposes. First of all, we would like to try to  
16 describe for you our proposed remedy for the western ground  
17 groundwater part of contamination from the Aerojet site.  
18 And secondly, and perhaps even more importantly, we would  
19 like to get your comments on that proposed remedy. It is  
20 part of our Superfund process, and we do need to get  
21 comments from the public and respond to them before we  
22 formally decide what we will do about this groundwater  
23 problem. So, again, I appreciate your being here and  
24 helping us with that.

25 There is a number of ways that you can comment on the

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1 proposed plan. First of all, I hope you have seen the  
2 proposed plans on the back table and picked one up if you  
3 haven't seen them before. We will be describing the

4 proposed plan tonight in case you haven't had a chance to  
5 read it. But you can comment verbally tonight and there is  
6 a microphone here for you to do that and there are speaker  
7 cards on the back table. So, if you wouldn't mind filling  
8 out a card, I will collect them a bit later on and that will  
9 just make sure that everyone gets a chance to speak.

10 When you do come up to speak at the microphone if you  
11 could please state your name for the record. This meeting  
12 is being recorded verbatim for the record, and we need to  
13 get your name when you make your comment.

14 Can everyone hear me okay? Can you hear all right?

15 We would like to ask everyone to speak once and then  
16 wait until everyone else has had a chance to speak before  
17 you come up and speak again. If you don't mind, we had some  
18 people last time who felt like they didn't have a fair  
19 chance at making their comments. This time we would like to  
20 make sure everyone gets a chance to speak before we go into  
21 a second round of comments. You can also, if you are not  
22 comfortable coming up to the microphone and speaking, you  
23 can provide your comments in written form. There is a  
24 number of ways you can do that.

25 First of all, there are comment forms on the back table

1 if you didn't see them. You can pick one up, fill it out  
2 and we will address that comment in our responsiveness  
3 summary. You can also E-mail me, and my E-mail address is  
4 on the proposed plan. You can fax me. My fax number is

5       there, or you can send me a letter. My address is there,  
6       too. So whatever way you're most comfortable commenting is  
7       fine with us.

8           Again, tonight we would like to keep the discussion  
9       focused on the proposed plan for the western groundwater  
10      operable unit at the Aerojet site. Some issues that have  
11      come up in the past we're just not fully prepared to address  
12      tonight. Those could be things like possible health issues  
13      from historical exposure to groundwater here. When we have  
14      more data available in the future, we are hoping the  
15      Department of Health Services of the State will have some  
16      meetings on potential health effects. But we are trying  
17      again to concentrate on our proposed remedy to clean up the  
18      groundwater tonight.

19           Couple other things we may not be able to address fully  
20      tonight: the issue of the transfer or sale of Aerojet  
21      property, issues of water rights once the water is cleaned  
22      up. That is a legal issue that probably will be hashed out  
23      in the courts.

24           But backing up for a minute on the issue of health  
25      effects, we do have a form on the back table for you to fill

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1       out if you want to address a question to the Department of  
2       Health Services on health issues. So, that would be another  
3       way to make those concerns known to DHS.

4           There are a number of other handouts for information  
5       back there. Feel free to pick them up. There are three  
6       sign-in sheets on the back table. If you didn't get a

7 chance to sign in, that is how we maintain our mailing list  
8 so that we can make sure that people who are interested get  
9 our fact sheets in the future. We ask you to please sign in  
10 on the EPA sign-in sheet if you're interested in getting  
11 future mailings.

12 There is also a citizens group, Concerned Citizens for  
13 Rancho Cordova Water. We have set up a sign-in sheet for  
14 them. So if you want to get information from them, it is a  
15 yellow pad that is on a clipboard back there, please feel  
16 free to sign in on their sign-in sheet. There is also a  
17 separate sign-in sheet for Department of Health Services so  
18 that you can be on their mailing list as well.

19 Everybody get a chance to sign in? Should I send that  
20 clipboard around again? There are clipboards on the back  
21 table. I will send it around just to catch anyone who  
22 didn't get to sign in on their way in.

23 Other than that, just a couple of logistical things. I  
24 know it is kind of early in the evening, if you didn't get a  
25 chance to eat dinner, there is some refreshments on the back

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1 table. Please help yourself.

2 The bathrooms are actually out this back door to the  
3 right and across the quad. And if you go out there, the  
4 door, I think, locks behind you. So either grab somebody or  
5 grab something and keep the door opened.

6 MS. BRASAEMLE: They unlocked one side.

7 MR. HODGE: I hear they unlocked one side, so we are

8       okay.

9           I just want to introduce the members of our panel here.

10          We have first and foremost Charles Berrey who is the  
11       Project Manager for U.S. EPA on this site.

12          And Alex MacDonald from the Regional Water Quality  
13       Control Board.

14          Stan Smucker, who is the EPA toxicologist working on  
15       this site.

16          Marilyn Underwood from the Department of Health  
17       Services, State of California.

18          Ed Cargile from the Department of Toxic Substances  
19       Control from the State.

20          And Karla Brasaemle who is a consultant working for EPA  
21       on this site.

22          And Esther Wiatre is our Court Reporter.

23          And Kathi Moore is our boss on this site. She is  
24       section chief in charge of the Aerojet site.

25          With that I think I will turn it over to Charles and,

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1       please, if you have any questions for me after the meeting  
2       feel free to catch me, and I will be happy to answer them.

3           Thank you.

4           MR. BERREY: This is the proposed agenda we have and  
5       the names of the individuals that were referenced, except  
6       for Marilyn Underwood, are listed on this sheet. That will  
7       help you know who the parties are that are up here on the  
8       panel. You just need to put Marilyn Underwood's name in  
9       there. Unfortunately, I thought that because she was about

10 to become a mother that she wouldn't be here tonight. But  
11 she is dedicated, so she is here.

12 The next thing I would like to do is take a couple of  
13 minutes to get you familiar with the different regulatory  
14 agencies associated with this site and their  
15 responsibilities. It gets complex for you to understand  
16 what we all are doing and what our agencies'  
17 responsibilities are. We can't necessarily, one person  
18 serve all of your needs. So that is why I sort of tried to  
19 put this together. It is not all inclusive, but basically  
20 some of the questions that were asked last time were: What  
21 does Aerojet operate under in today's environment?

22 Basically, RCRA was established in 1976. And when RCRA  
23 came out, that was for permits, inspections, hazardous waste  
24 generators, storers, treaters and transporters. And,  
25 basically, Aerojet has to operate in accordance with RCRA.

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1 RCRA regulations apply to that site.

2 In 1980 CERCLA, which is the Comprehensive  
3 Environmental Response Compensation and Liability Act,  
4 occurred. And that is what I am responsible for, which is  
5 clean up of contamination prior to RCRA, which is the  
6 Resources Conservation Recovery Act.

7 Then there is the Toxic Substances and Disease  
8 Registry, known as ATSDR. They do public health  
9 assessments, and we have a grant deed - I should say a  
10 grant with the environmental health investigation branch of



11 the California Department of Health Services.

12 Basically, those are the main federal players  
13 associated with things that are occurring at Aerojet. And  
14 RCRA may do something without CERCLA and CERCLA can do  
15 things without RCRA. We do have to coordinate when one  
16 party wants to do something like RCRA delegate to CERCLA or  
17 something like that, like a landfill or something of that  
18 nature.

19 In the area of the State we have various agencies. The  
20 Regional Water Quality Control Board Central Valley,  
21 represented by Alex here, they are the signatory on the  
22 consent decree with Aerojet we have for the RIFS. So, they  
23 also review documents that Aerojet prepares for the  
24 remediation. So in addition to EPA reviewing the documents  
25 the Regional Water Quality Control Board reviews the

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1 documents and DTSC also reviews the documents because the  
2 Department of Toxic Substances Control, all three of those  
3 are signatories under the consent decree we have with  
4 Aerojet for the RIFS, which is the Remedial Investigation  
5 Feasibility Study.

6 In addition, the Regional Water Quality Control Board  
7 does National Pollution Discharge Eliminations System  
8 permitting. That is a delegated responsibility to the State.  
9 What that means is that anytime Aerojet has a discharge that  
10 they want to put in a navigable waterway, they have to get a  
11 permit from the Regional Water Control Quality Board to do  
12 that.

13           The Department of Toxic Substances Control, they also  
14   have some delegation from RCRA. Under the Department of  
15   Health Services there are various different agencies, but  
16   the main ones are the Department of Water which reviews  
17   permits for treatment processes and regulates water  
18   purveyors. The environmental health investigation branch  
19   under the Department of Health Services, they do health  
20   consultations.

21           So my area of responsibility, again, is remediation of  
22   old spills. And that is why we have this proposed plan, to  
23   do remediation for contamination that is coming up at  
24   Aerojet.

25           Bear with me. Some of you people saw this before, last

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1   time. There are some new people here, so I am going to go  
2   through what the CERCLA process is for Aerojet.

3           Basically, the first step is to do discovery, which has  
4   been done. The preliminary site assessment investigation  
5   has been done. The site listing on the NPL, which is a  
6   National Priority List, which has been done. And then the  
7   next five steps are repeated for each operable unit. We  
8   anticipate there will be six operable units for Aerojet.  
9   This is the first operable unit that we are dealing with  
10   here tonight.

11           When you do an operable unit you follow the following  
12   steps: You go through remedial investigation; feasibility  
13   study, which then has a public notice, a public meeting, a

14 public comment, which is what we are doing right now; and  
15 then there is a record of decision, which is known as a ROD;  
16 and then fact sheets that are given out to the public on at  
17 least a yearly basis to keep them informed of what is going  
18 on at the site; and then there is remedial design, remedial  
19 action, operation and maintenance. And then you get to a  
20 final step which happens after you've done all your operable  
21 units would be delisting of the site when everything is  
22 clean.

23 Now what I would like to do is give you an overview of  
24 the western groundwater which is Operable Unit 03. The line  
25 you see drawn around the area here is approximately 15

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1 square miles. That is the area of concern. The  
2 contaminants that you see which we are showing is the  
3 maximum extent of contamination which runs through here,  
4 which covers Layer C, which is the contaminated aquifer  
5 layer, is the maximum extent of the plume. It runs all the  
6 way to Zinfandel. And you can see the major highway, which  
7 is Highway 50 which runs through here, but Zinfandel extends  
8 to that line right there.

9 In the overall size of the plume, there are three  
10 layers that are contaminated inside the aquifer. There are  
11 Layers C, D and E. Layer C is approximately nine square  
12 miles and is about 60 percent of the area of the plume.

13 The next layer down which is contaminated which is  
14 smaller is Layer D, which is approximately 4.6 square miles  
15 and is about 30 percent of the plume.

16           The next layer down which is contaminated is Layer E,  
17       which is now one square mile and occupies about 9 percent of  
18       the area.

19           In the area of groundwater we have approximately 15  
20       chemicals which represent the contaminants of concern for  
21       the site. The main three contaminants of concern are  
22       perchlorate, N-Nitrosodimethylamine and TCE. Perchlorate  
23       will be treated by a biological system which Aerojet has  
24       been using for the last two years that they developed. NDMA  
25       will be treated by UV. And VOCs that remain if they haven't

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1       been knocked out by the UV will be treated with air  
2       stripping.

3           The remedy will be driven by the treatment that will be  
4       done for the perchlorate and to some extent for NDMA. The  
5       majority of contamination is perchlorate. The next most  
6       prevalent contaminant is TCE, followed by NDMA. The  
7       proposed treatment levels for perchlorate is 4 parts per  
8       billion, which is the lower end of the EPA treatment range.  
9       The proposed treatment level for NDMA is 1.3 parts per  
10      trillion, which is EPA's preliminary remediation goal, which  
11      is one in ten to the minus six cancer risk, and that is 1.3  
12      parts per trillion. And that, as you may not know, is the  
13      lower end of the detection limit. There are some people  
14      that said they can reach two parts per trillion, but right  
15      now it is known that 20 parts per trillion is an easily  
16      maintained detection capability and that will be an issue

17 that will be improved with investigation and development  
18 work on treatment processes. But right now the proposed  
19 treatment level is 1.3 parts per trillion for NDMA.

20 When EPA does a review of the alternative, they go  
21 through nine criteria. The first two criteria are known as  
22 balancing criteria, and the alternative has to pass these  
23 two criteria before it can proceed. If it doesn't pass the  
24 two criteria, it drops off the list. Of the different  
25 alternatives, we had ten.

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1 The first alternative which was no action didn't pass  
2 the threshold criteria. And the second set of alternatives  
3 which were series two, A and B for replacement water  
4 supplies, didn't pass the threshold criteria because the  
5 plume would continue to migrate.

6 So basically we ended with seven alternatives which  
7 passed the EPA's criteria, and we evaluate for compliance  
8 with the balancing criteria which is long-term  
9 effectiveness, remediation of toxicity, mobility and volume  
10 for treatment, short-term effectiveness, implementability  
11 and cost.

12 In addition, there are two additional criteria that  
13 have to be reviewed, which are modifying criteria, which is  
14 state acceptance and community acceptance. And right now  
15 this is part of the public meeting process, getting your  
16 comments which is for the public acceptance of the remedy.

17 EPA's preferred remedy is Alternative 4C. 4C consists  
18 of extraction of contamination using pump and treat with two

19 barrier systems. The first is to improve the barrier system  
20 on property which consists of adding an additional 13  
21 extraction wells. The second part of the remedy is to  
22 control the plume at the toe, and that adds 22 extraction  
23 wells to be able to do that.

24 The difference between Alternative 4B and 4C is there  
25 are five different extraction wells, but the wells are

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1 placed closer to the center of the plume to expedite the  
2 remediation.

3 The difference that we estimated between 4B and 4C was  
4 that 4C could remediate the aquifer faster, and the estimate  
5 was that it could do it about 45 percent faster. And that  
6 is by adding five additional wells and by moving five of the  
7 wells that were in the exterior boundary, by moving five of  
8 the wells that were out here in the 4B scenario toward the  
9 center and adding five additional wells.

10 What this did was allow us to remediate the D and E  
11 plume faster instead of allowing it to reach all the way out  
12 here to the C layer where the layers would have been  
13 installed in 4B.

14 The estimated cost for 4C is about \$15,000,000 more  
15 than the remedy for 4B.

16 Next question is what do you do with the water you pump  
17 out?

18 This removes approximately 7,000 gallons per minute of  
19 water that comes out of the aquifer. Now that could be

20 either direct reuse, indirect reuse or reinjection. So  
21 these alternatives were estimated based on these criteria.

22 Indirect reuse is the treatment and removing of the  
23 contaminants of concern, then with an NPDES discharge to  
24 Buffalo Creek, extraction from either the American River or  
25 the Folsom South Canal, surface water treatment and then

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1 made available to reuse by the water purveyor.

2 Basically, what happens under that extraction system is  
3 that a new treatment plant is installed for surface water  
4 treatment. It then treats the water and then it goes into  
5 the water purveyor system. In addition, when the water is  
6 transferred to the American River there is a dilution factor  
7 of 1 in 50. Under direct reuse, which is currently not  
8 implementable because you need a permit to be able to do  
9 that, and Department of Health Services hasn't approved the  
10 system, but they are right now evaluating a system similar  
11 to what Aerojet is proposing in Southern California, and  
12 that permit is currently pending.

13 Basically, in that process of direct reuse you treat  
14 and remove the contaminants of concern, and then it is  
15 available to the water purveyors for reuse.

16 The third alternative is reinjection, which is putting  
17 the water back in the aquifer. The water purveyors have  
18 expressed a concern for reinjection to the aquifer because  
19 they were worried that the aquifer could be recontaminated  
20 and wouldn't be available for use. The agency has looked at  
21 reinjection, and our main concern for reinjection is that it

22 doesn't control the plume as well as extraction. So our  
23 preference is for extraction.

24 The next question of concern I am sure you are worried  
25 about is: What is the effect on me from disruption?

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1 Basically, what happens is that these chemicals are brought  
2 back to Aerojet for treatment at a treatment plant. To get  
3 back to Aerojet they have to go through a piping system.  
4 That piping system would be installed in easements and  
5 roadways that the county has, and it would be a similar  
6 disruption you would face when the city puts in a new sewer  
7 line or a new water main. So there would be some traffic  
8 difficulties.

9 4B has less pipelines than 4C, so there is slightly  
10 less disruption in that regard. But because the remediation  
11 goes on for so much longer under 4B, we feel that 4C is  
12 preferable.

13 That is just a general overview of the different  
14 alternatives and the preference for EPA's preferred remedy.  
15 So at this point we would like to go into public comment and  
16 get your questions that you have that you would like on the  
17 record.

18 MR. HODGE: Thanks, Charles.

19 Let me just collect any speaker cards that I don't  
20 already have, and then we will just start calling names one  
21 at a time. If you have any questions that you would like to  
22 ask just to clarify the presentation, feel free to ask those



23 during your comment.

24 Thanks.

25 Speaker cards, anyone?

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1 Our first speaker will be Laurette Laurent.

2 MS. LAURENT: I have a handout for you so you will have  
3 my record. My name is Laurette Laurent.

4 I am really glad to see that you have an aerial  
5 photograph. Some of these people - I know Aerojet is right  
6 in the center there. Some of these people in the room might  
7 not even live so close to the area of concern that their  
8 house is almost within the picture. My house is almost  
9 within the picture.

10 I live abutting federal property in a subdivision near  
11 Lake Natomas' shores. I hope you won't feel that my remarks  
12 tonight go too far afield. I have prepared a presentation  
13 for you, and I think it's really important that you know  
14 what I learned about the site and that you learn the who,  
15 who wants what. So I have prepared remarks and I am going  
16 to wing it from there.

17 Regarding this, I would like to make a number of  
18 points. The first one, the contaminants which damage our  
19 lives and health do not recognize political or ownership  
20 boundaries, so I ask that the government should not try to  
21 bind these poisons to map boundaries but follow their actual  
22 extent. I ask you not to allow any construction on any  
23 property owned by Aerojet because we do not know at this  
24 point with any scientific certainty the extent and nature of

25 the poisons and the dangers.

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1 I have a second request, which is please help to cause  
2 independent, truly, truly independent testing of soil and  
3 water to happen east, north and south of Aerojet. I will  
4 give you a clue, particularly north. Please read the  
5 attached documents that I prepared because Aerojet is  
6 seeking to annex to Folsom and Folsom is making sphere of  
7 influence over Aerojet lands.

8 I ask you again please to recognize who the players are  
9 and the nature of their behaviors, past history and their  
10 motives.

11 I have analyzed a stack of engineering documents more  
12 than two feet high. For your convenience I have done a cut  
13 and paste of actual excerpts and reduced them to a few pages  
14 with photographs and news items. This information is  
15 submitted because it is about engineering or integrity of  
16 public officials - public health, safety and welfare.  
17 Please learn all you can about the individuals and officials  
18 involved in the future of this historically troubled land  
19 which was churned and abused for the last 150 years. And  
20 since a major human water source courses through this  
21 troubled land, please make protection of our drinking water  
22 the priority.

23 I have a postscript in my remarks to you, an  
24 itemization of exactly what I have. For the benefit of the  
25 audience I feel really badly that I couldn't afford to make

1 copies for everybody, but I do want to give you some of the  
2 flavor of it. And you can stop me whenever you want. I  
3 wish I could get this to everyone.

4 There have been a history of sewage surcharges in  
5 Folsom. That means raw human waste flowing into public  
6 waterways. Even after the city was cited for the one spill,  
7 one single spill of \$700,000 gallons, last January, almost  
8 one year ago today, these are comments I've cut from  
9 engineering documents that occurred since then. There are  
10 at least five different documents that I quoted, and they  
11 say things like engineers telling Folsom you have  
12 significantly less capacity than required in your pumping  
13 facility on Iron Point Road. That was January 2000. The  
14 independent engineers told them you'll need improvements in  
15 the year 2001 because you do have a lot of growth.

16 A spill in May of 2000 they wrote, because the city has  
17 agreed to accept surcharging until FE3 is completed, only a  
18 thousand feet of the Willow Creek sewer system was  
19 replaced. In other words, because Folsom agreed that it was  
20 okay to continue putting raw human waste into Willow Creek,  
21 which feeds to Lake Natoma, which is a source of drinking  
22 water flowing into the American River, I am going to read a  
23 full paragraph from the second report, May of 2000. These  
24 are independent engineers writing to the engineer in charge  
25 of private development, the City of Folsom.

1           This analysis and the two previous analyses  
2           have been based upon performance criteria  
3           which are below those which normally would be  
4           recommended for sewer system design and  
5           planning. There have been instances where  
6           significant surcharging has been accepted and  
7           no capacity cushion has been allowed. This  
8           is not a good design. We do not recommend  
9           the surcharging shown as acceptable.

10           (Reading.)

11           From a different test of May 2000, speaking about  
12   Broadstone which is a subdivision just north and east of  
13   Aerojet.

14           Units 1 and 2 are already built. The  
15           engineers said, based a field test –

16           (Reading.)

17           And by the way, field testing to be done because the  
18   City does zero monitoring of our sewage system.

19           – based on a field test by independent  
20           engineers, the capacity of the existing  
21           Broadstone station is about 1.6 million  
22           gallons per day, not 2.4 as reported in the  
23           design documents.           (Reading.)

24           That is a polite way of saying that the sewer system in  
25   Broadstone, built by a developer that see a lot around here

1 lately, was designed and required to handle 2.4 million  
2 gallons of human waste out of that area per day, and when  
3 someone finally went out there because they were honest,  
4 independent engineers, they found the system running at 1.6  
5 mgd, not 2.4. That is a million gallons of human waste, raw  
6 human waste, undiluted.

7 In July of 2000 the City was told in another study that  
8 the project in question would need to be completed as soon  
9 as possible to reduce the amount of surcharging, again this  
10 is waste, human waste sewage currently occurring in the  
11 Willow Creek area. They also recommended then that the  
12 City finally begin to monitor flow and construct a  
13 pipeline.

14 In November of 2000 I have given you a quote from one  
15 of our City Council people who wrote a letter and said -  
16 this is one of our council people who purports to be a  
17 registered engineer:

18 The spill resulted from the storm, not the  
19 number of houses built in Folsom, not from  
20 inadequate planning and not from inadequate  
21 sewer capacity. (Reading.)

22 That is what we are dealing with, a city council  
23 person, an engineer, who denies there was a sewage spill and  
24 calls it clarification.

25 In November of 2000, I have for you a copy of Central

2 inspection report which told the City that their private  
3 construction and public construction at the Natoma Bridge  
4 both violate the NPDES permit.

5 December 12th, the Regional Water Quality Board again  
6 wrote the City. They have been asking the City for notices  
7 on compliance with erosion and runoff issues. And it says  
8 in this letter dated December 12th that the City was  
9 eligible for a fine \$1000 per day on two counts for not  
10 complying with law.

11 The next page I have given you is just -- you might  
12 consider it an aside because it is about the City gave me a  
13 letter, they put it in writing, and stated:

14 Regarding -- (Reading.)

15 I have written a letter that the City needed to post  
16 the 25 mile school zone signs to protect our children at  
17 schools. You will see them out here. They are very  
18 definite state laws. I have a letter here when I campaigned  
19 to protect our children at a school where the posted limit  
20 was 55, and they refused to put up a 25 miles protection  
21 sign:

22 There is no legal requirement for  
23 posting a 25 mile sign. (Reading.)

24 I fought them for one year and one week, and finally  
25 got the signs posted by bringing a state agency directly

1 into it.

2 The next page I give you actual copies and clips from  
3 some City engineering studies for speed zoning, where the

4 engineer in the past had said that this particular location  
5 is "safe at 35." Go figure the City has left it posted at  
6 55 miles per hour. At this location where the engineering  
7 studies have always said it is dangerous at, it is dangerous  
8 at 45 miles per hour at this location. Go figure, the City  
9 raised it to 50.

10 I have also included some letters about Folsom's lack  
11 of schools, Folsom's lack of parks, Folsom's lack of  
12 infrastructure, and the piece de resistance is the letter  
13 from the U.S. Bureau of the Interior, the Bureau of  
14 Reclamation. This letter is dated December 13, 2000. It is  
15 just about a month old.

16 It's recently come to our attention that the  
17 City has applied to extend its sphere of  
18 influence south of 50. This action is of  
19 some concern to the Bureau of Reclamation as  
20 we provide water to the City. In providing  
21 information related to execution of our  
22 contract with said County water agency the  
23 City made statements that indicated its  
24 entire supply was allocated north of 50,  
25 expansion was already approved in the east

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1 area north of 50, and would require an  
2 additional 7,000 acre-feet. (Reading.)

3 I guess they expected to invent it in Folsom.

4 We are extremely interested in the source of

5 the water that would be necessary for the  
6 expansion south of 50. But another issue  
7 even more pressing is the City's ability to  
8 sustain an outage and water delivery from  
9 Reclamation. (Reading.)

10 This is our water supplier in Folsom, the U.S. Bureau  
11 of Reclamation.

12 In discussions with your staff we were  
13 informed that the City has the ability to  
14 sustain only a four-hour outage in water. We  
15 wish to put the City on notice, our contract  
16 provides for outages of 72 hours with the  
17 possibility of longer curtailment service.  
18 It is hoped the City provides for longer  
19 periods of outage than the previous mentioned  
20 four hours and plans to expand its emergency  
21 supplies. (Reading.)

22 The reason I -- I think you are getting the flavor.  
23 The reason I mention these things is so that you know who  
24 you are dealing with. I also included on the back GenCorp  
25 asked the feds to take the property off the Superfund

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1 list. I don't remember those people stating that the last  
2 time I was here that they had gone to federal court to ask  
3 that some Aerojet land be taken off the Superfund site. And  
4 I plead with you, since we don't have enough water and if  
5 the water that we have is going to be full of poisons, we  
6 have a problem.



7           If there is anybody here from the press, I have brought  
8       extra copies of the paperwork I so laboriously put together.  
9       So if there is any community agencies or members of the  
10      press to whom I can supply it, please tell me.

11           Thank you for listening, and I hope you will look at  
12      these very carefully.

13           MR. HODGE: Thanks, Laurette. It is obvious you put a  
14      lot of time and effort into issues regarding water and other  
15      things here in Rancho Cordova.

16           I am not sure how much of this we are prepared to  
17      address right now, since we haven't had a chance to review  
18      your submission.

19           Was there anything among those comments that you felt  
20      you could respond to at the moment or shall we wait?

21           MR. BERREY: As far as the proposed remedy for western  
22      groundwater, I am having trouble identifying issues which  
23      was presented, which would be something we would respond to.

24           MS. LAURENT: Take it under advisement.

25           MR. HODGE: We will definitely review all the printed

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1      material and see what relates to the western groundwater  
2      operable unit. And whatever we can discern that does relate  
3      to this proposed plan, we will respond to in our  
4      responsiveness summary.

5           MS. MOORE: If I can add just a little bit to that. I  
6      think you brought up a lot of really good issues, and I  
7      understand you have concerns with the City of Folsom. I

8       heard that. And I think what I am going to ask Alex to do  
9       — I am going to ask Alex to tell you about the Regional  
10       Water Quality Control Board about the different organization  
11       within that larger government entity, take your information  
12       back and have them look into it maybe a little further, some  
13       of the articles, and I am sure they are doing some  
14       enforcement action.

15           MS. LAURENT: Yes. I am doing most — most people have  
16       water quality. Just one person is recalcitrant.

17           MS. MOORE: It is kind of out of context for us.

18           MS. LAURENT: It is the who.

19           MS. MOORE: I understand. The one issue that you did  
20       raise, which is something that we will definitely take under  
21       advisement, is the last article you talked about where  
22       Aerojet is talking to federal agencies about removing their  
23       site from the NPL list. That does concern our organization.  
24       And to clarify, we will get into this issue in the near  
25       future as we work through this process.

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1           MS. LAURENT: If you see — this is today's paper,  
2       Operating Profits Jump 19 percent at GenCorp. GenCorp  
3       merger still sought for Aerojet. Hot stuff. These are  
4       today's articles about Folsom and Aerojet.

5           MS. MOORE: We do have concerns that lie with their  
6       financial ability to pay for this cleanup. We are concerned  
7       about those issues. We are concerned about what is going to  
8       happen in the future. Our focus for tonight is on the  
9       western groundwater operable unit. As I said, there is a

10 process that we are working through. They have asked us,  
11 and removal from NPL is oddly put because we don't define  
12 specifically certain boundaries and areas for the NPL. But  
13 the site in general is on the National Priorities List, and  
14 that is within our kind of bailiwick that we work on.

15 I thank you for that comment. We will probably be back  
16 in the near future to talk that whole process through with  
17 you.

18 MS. LAURENT: Again, I try to give the who. You keep  
19 telling me what you want. I will give it. As a scientist,  
20 we can't leave - I am saying we can't leave out the who.  
21 That is what I am; I am just a scientist.

22 MS. MOORE: I understand your concerns and your issues  
23 there. I think we share some of them. But we also try and  
24 balance all of the interests. So, again, that is an issue  
25 that has been raised to us. We have not made a decision on

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1 that.

2 MS. LAURENT: The land split.

3 MS. MOORE: When they talk about removing from the NPL,  
4 what is or isn't on the NPL and what is or isn't clean.  
5 That is a process that is going to take a long time to work  
6 through. As you see, the site is very contaminated. It is  
7 going to take 240 years to just do this portion. There are  
8 six more operable units, if not more, to work on.

9 MS. LAURENT: Don't forget my house is almost in the  
10 picture, so let's get the truth.

11 MS. MOORE: I understand. I just want to say that the  
12 next issue of what is or isn't on our list is a very  
13 complicated one and it is one that we will be working with  
14 everyone on in the future.

15 MS. LAURENT: I thought the who was different by the  
16 time that you get to the next operable unit.

17 MS. MOORE: I think Aerojet will always be here.

18 MR. HODGE: We do need to get your name for the record  
19 if you have a question.

20 MS. DOVE: Actually I have two questions. One is -

21 THE COURT REPORTER: Name, please.

22 MS. DOVE: I am Ellen Dove. Mr. MacDonald was recently  
23 at the CORE PAC meeting, the planning commission from Rancho  
24 Cordova, Planning Advisory Council. And at that meeting -  
25 and nobody mentioned it here today except I saw it vaguely

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1 referenced in one of your slides. One of the plans to  
2 replace - because they talked a lot at that other meeting  
3 about if you take the water out what do we do? Because  
4 otherwise the aquifer is going to drop, the water table is  
5 going to drop. Everybody's wells are going to be - people  
6 are going to have problems on their agricultural properties  
7 and everything else.

8 As I understood it, there was a proposal and I didn't  
9 know how far along, whether there was a contract or just a  
10 suggestion. It was my understanding that 3,000 gallons, I  
11 guess, per minute was a potential replacement. And I heard,  
12 correct me if I am wrong, that they had an agreement of some

13 sort with the City of Folsom to provide that extra  
14 gallonage.

15 Could you elucidate on that one for me?

16 MR. MACDONALD: Sure. Part of the remedy for western  
17 groundwater, part of being at Aerojet is the replacement of  
18 currently lost water supplies and future lost water  
19 supplies. One of those system proposals is to use, to  
20 contract with the City of Folsom over the next three years,  
21 a limited term contract, using excess capacity that the City  
22 of Folsom currently has and using that 3,000 gallon a minute  
23 to replace lost water supplies during this interim period of  
24 time. It is not the permanent replacement, just interim  
25 replacement.

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1 MS. DOVE: Is that contracted or just proposed?

2 MR. HODGE: Could everyone hear Alex's answer?

3 MS. DOVE: Is this contracted excess capacity or  
4 proposed or alleged excess capacity?

5 MR. MACDONALD: Aerojet has a contract with the City of  
6 Folsom.

7 MS. DOVE: Has that contract been approved by the City  
8 Council and it's something that's been on the agenda and  
9 public record?

10 MR. MACDONALD: That's correct. I have a copy of  
11 that.

12 MS. DOVE: I would love to have you share that with  
13 me.

14           And my second question was to do with costs. I notice  
15           that you mentioned something about how this is going to be  
16           funded, and earlier it was mentioned that it was going to  
17           cost \$15,000,000, Someone else who is here, perhaps he is  
18           going to speak on it, I don't know, Larry Ladd said to me  
19           that there was an agreement between Aerojet and the U.S.  
20           government regarding who would pick up if there was  
21           contamination or problems. And that the government, the  
22           federal government is going to pay 88 percent of these  
23           costs.

24           Is that correct? And if it is, do we ever get to see a  
25           copy of anything of that sort?

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1           MR. BERREY: There is an agreement that Aerojet has  
2           with the Department of Defense to reimburse them for  
3           remediation efforts that they perform. And that agreement  
4           states that Aerojet is responsible for 12 percent of costs  
5           and the government will reimburse them on the forward price  
6           of rates for the 88 percent.

7           MS. DOVE: The 15,000,000, was that Aerojet's portion  
8           or was that the entire cost?

9           MR. BERREY: That was the difference between Alternate  
10          4C and 4B. The total cost for Alternate 4C is approximately  
11          \$115,000,000.

12          MS. DOVE: I'm sorry. I didn't understand. That was  
13          just -

14          MR. BERREY: It was me probably not being clear about  
15          it. Basically, the difference between the remedies is

16 \$15,000,000.

17 MS. DOVE: Of the hundred million, the federal  
18 government will pay 88,000,000 and Aerojet will pay  
19 12,000,000, if my math is right. Is that correct?

20 MR. BERREY: Based on the forwarding pricing rate  
21 agreement they have, yes.

22 MS. DOVE: Thank you.

23 MR. HODGE: Next speaker card I have is Jim Embree.

24 MR. EMBREE: My name is Jim Embree. I have been  
25 retained by Aerojet to serve as a technical resource

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1 regarding the toxicological considerations, implications and  
2 potential public health impacts of the contaminants in the  
3 groundwater at the Aerojet site and the remedies proposed to  
4 address the contamination.

5 My Ph.D. is in toxicology from the University of  
6 California, San Francisco Medical Center, and I'm Board  
7 Certified in general toxicology. I have over 25 years of  
8 experience in assisting governmental agencies and private  
9 companies involved in the environmental contamination and  
10 the various cleanup programs.

11 I am here tonight to help you understand the technical  
12 issues that are involved in the cleanup of this site as you  
13 desire. There are three primary contaminants of concern in  
14 the groundwater attributed to Aerojet's operations over the  
15 last several decades: TCE or trichloroethylene, a commonly  
16 used chlorinated solvent; perchlorate; and a chemical

17 commonly called NDMA or N-Nitrosodimethylamine.

18       These contaminants will be reduced to levels at which  
19 significant risk to the public health and the environment  
20 are eliminated. If any of the treated groundwater is used  
21 as drinking water, it will have to meet the stringent  
22 drinking water standards.

23       The California Department of Health Services has  
24 developed a final drinking water standard for TCE of 5 ppb,  
25 parts per billion. This is called the maximum contaminant

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1 level or an MCL.

2       Pending development of an MCL for NDMA and perchlorate,  
3 DHS has developed temporary standards called action levels.  
4 For NDMA the action level is 20 parts per trillion. For  
5 perchlorate the action level is 18 parts per billion. A  
6 part per trillion is roughly equivalent in ratio of one inch  
7 in about 16,000,000 miles. And a part per billion is  
8 equivalent to one inch in about 16,000 miles.

9       It is important to remember that these levels are set  
10 to be protective of the potentially sensitive population and  
11 that includes infants with a substantial margin of safety.

12       The recent focus on perchlorate has resulted in  
13 considerable new information related to its potential for  
14 adverse health effects. The federal government with the  
15 assistance of Aerojet and other companies involved in  
16 cleaning up perchlorate in the environment have supported a  
17 number of studies designed to provide data for determining  
18 the appropriate drinking water standards. Results of those



19 studies and a federal EPA recommendation for an appropriate  
20 drinking water standard should be forthcoming within the  
21 next few months. The current thinking is that the new  
22 standard for perchlorate is likely to be higher; that is,  
23 less stringent than the current standard.

24 If the audience has questions I will be very happy to  
25 try to answer them for you.

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1 Thank you, or if you have questions.

2 MR. BERREY: The one point I will state is that EPA is  
3 planning to do an external peer review and that probably  
4 will not happen until the mid part of the year. So that's  
5 at least this summer; that is for perchlorate, yes.

6 MR. HODGE: The next card I have - I am not sure I can  
7 read this. I believe it is Mr. Somer.

8 MS. SOMER: I am not prepared to say a whole lot. I  
9 don't know. I am not sure that I know enough to make a  
10 statement.

11 MR. HODGE: If you can state your name for the record.

12 MR. SOMER: Ellic Somer, S-o-m-e-r.

13 I've just been listening to Laurette there. It looks  
14 to me if you're dealing with Folsom, you're dealing with a  
15 bunch of screwups. That is all I can say is, whatever  
16 involves cleaning this up involves the City of Folsom, watch  
17 out.

18 MR. HODGE: The next card I have is Sandy Smoley.

19 MS. SMOLEY: Good evening. My name is Sandy Smoley.

20 Some of you may remember I served on the Sacramento County  
21 Board of Supervisors from 1972 to 1992, and then I went on  
22 to be California Secretary of Health and Human Services  
23 Agency from 1993 to 1999. I began my career as a nurse.

24 Among a host of other health-related issues that I  
25 oversaw at the Health and Welfare Agency is the regulation

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1 of the state's drinking water. So I am quite familiar with  
2 drinking water and environmental issues. I am now  
3 consulting in the private sector and working with Aerojet  
4 and its parent company, GenCorp, to develop and participate  
5 in an effective outreach program to ensure that our  
6 community understands this cleanup plan and its  
7 implementation.

8 I am also working with GenCorp and Aerojet to keep the  
9 public well-informed about their activities that relate to  
10 the surrounding area and the future of the capital valley  
11 region. Some of the public frustration with the proposed  
12 Aerojet cleanup may have developed over a lack of sufficient  
13 information on the proposed cleanup and the associated  
14 public health and environmental concerns. I intend to see  
15 that the community remains well-informed about the cleanup  
16 and all related public health and environmental issues  
17 related to that cleanup.

18 In short, I plan to serve as a liaison to the local  
19 community, especially those who have raised concerns about  
20 the proposed cleanup.

21 Let me take this opportunity to address two issues on

22       which I have heard significant community concern: the long  
23       proposed period of time necessary to complete the cleanup  
24       and Aerojet's commitment to address the environmental  
25       responsibilities.

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1           The cleanup will take about 240 years. I understand  
2       from professional hydrogeologists that the 240-year estimate  
3       is based upon an EPA estimate that all water in the entire  
4       aquifer be pumped out and treated six times, with each  
5       treatment cycle producing cleaner water from the aquifer  
6       until the very stringent cleanup levels set by the federal  
7       EPA are sustained.

8           The majority of the contaminants will be eliminated  
9       after the first cycle. Aerojet believes it can complete a  
10      substantial portion of the proposed cleanup in 15 to 20  
11      years. In the near future this cleanup should be viewed as  
12      one designed to contain and reduce the contaminant plume so  
13      that there are no adverse effects to the environment and no  
14      significant risk to public health. The calculation assumes  
15      that no improvement in the technology will be developed.  
16      Great advances in technology already have happened,  
17      including new methods to speed cleanup have been developed  
18      over the last two decades and can be expected to continue in  
19      the future.

20           For example, Aerojet has informed me that its testing  
21      of in situ treatment of perchlorate is showing great promise  
22      and may have major impacts on the speed and implementation

23 of the remedy. Regardless of time required to complete  
24 cleanup of all groundwater under and in the vicinity of the  
25 site, there will be significant risk to the public and safe,

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1 clean drinking water will be provided to the community as  
2 the cleanup proceeds.

3 The company can move or go out of business and abandon  
4 the site. Under Superfund the Aerojet cleanup will be  
5 overseen by state and federal agencies that will see to it  
6 that Aerojet proceeds with the cleanup for as long as it  
7 takes. The federal government, through the U.S. Department  
8 of Justice and U.S. EPA, will be kept in very close watch on  
9 the financial condition of the company to ensure that the  
10 cleanup is appropriately funded. GenCorp is a public  
11 company that is now headquartered in Sacramento. GenCorp  
12 assures me that it has every intention of remaining in  
13 Sacramento and using the Sacramento facility as a base to  
14 conduct its worldwide activities and has announced these  
15 plans to its shareholders and financial analysis.

16 The Aerojet property, some 20 square miles, is one of  
17 GenCorp's major assets. In order to protect the value of  
18 that property, GenCorp must ensure the public that it will  
19 proceed aggressively with the cleanup and will with the  
20 oversight agencies take all those steps necessary to protect  
21 public health and the environment. As you raise these  
22 issues, like these, I intend to get the community the  
23 answers that they need.

24 Thank you very much.

25 MR. BERREY: With regard to how we evaluated all the

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1 alternatives, we treated them all the same. So, basically,  
2 our evaluation estimated six for volumes for the cleanup  
3 time. I will be extremely happy if it occurs in 15 to 20  
4 years, but basically our evaluation was that we couldn't be  
5 that optimistic. And so, consequently, we treated all the  
6 remedies the same. So when we did our evaluation, we could  
7 get a comparison evaluation.

8 MR. HODGE: Next speaker is Peter Rooney.

9 MR. ROONEY: Good evening. My name is Peter Rooney. I  
10 was the California Secretary for Environmental Protection at  
11 Cal EPA from June of 1997 to January of 1999.

12 I have been asked by Aerojet to review the remedy  
13 proposed by U.S. EPA for the Aerojet Superfund cleanup  
14 site. Having done so, I would like to reassure the  
15 community that this plan, regardless which of the two  
16 preferred alternatives are selected, involves the maximum  
17 efforts needed to protect public health and the environment  
18 from any significant risk.

19 In my capacity as the chief environmental officer of  
20 the State of California I frequently worked with parties  
21 responsible for cleanup projects, other state environmental  
22 agencies and the federal EPA to fashion remedies that would  
23 provide the maximum protection to public health and the  
24 environment. The primary objective in these cases of  
25 groundwater contamination is first and foremost stop the

1 contaminant plume from damaging additional portions of the  
2 aquifer. The next steps are to clean up the existing  
3 contamination to the extent possible. And, two, in cases  
4 where groundwater is used as a source of drinking water, to  
5 restore drinking water to the drinking water standards.  
6 And, three, to provide replacement water as needed.

7 All of those steps will be implemented in this plan at  
8 the Aerojet site.

9 I am convinced that the federal EPA and Aerojet have  
10 stepped to the plate with an aggressive remedy in this  
11 case. As the federal EPA and Aerojet attest, both the  
12 alternative preferred by EPA, Alternative 4C, and the very  
13 similar alternative preferred by Aerojet, Alternative 4B,  
14 will stop the further advancement of the contaminant plume.  
15 Alternative 4B involves a smaller number of extraction wells  
16 and fewer miles of construction impacts.

17 EPA believes that 4B may take longer to fully cleanse  
18 the aquifer. Because of this, EPA has concluded that  
19 Alternative 4B will actually be the more costly alternative  
20 in the long run, although we mentioned earlier this evening  
21 that there was some \$15,000,000 savings by 4C, I believe you  
22 said -- by 4B. But in reality, if you read the U.S. EPA  
23 documents for the long term and full extent of the process,  
24 as I see, 4B which Aerojet is supporting, is actually the  
25 more costly alternative.

1           Either way, and I believe that this point cannot be  
2       overstated, the community's drinking water will be fully  
3       protected while the cleanup proceeds, no matter which of the  
4       two alternatives is selected. Additionally, regardless of  
5       which alternative is selected, alternative drinking water  
6       will be provided by Aerojet to replace any and all drinking  
7       water that has been lost due to the closure of a few of the  
8       community's existing drinking water wells.

9           Both alternatives also move aggressively to clean up  
10      the existing contamination. The key here is to understand  
11      that the community and the environment will be fully  
12      protected while the existing contamination is removed. No  
13      unsafe water is or will be used as drinking water.

14          EPA's remediation time estimates, as Ms. Smoley pointed  
15      out, assumed all the effective groundwater will be pulled  
16      from the aquifer six times and each time treated to meet  
17      drinking water standards. Again, as was pointed out by Ms.  
18      Smoley, the reason for the repetitive treatments is that  
19      when the water is pulled out of the aquifer and treated, the  
20      aquifer will recharge itself with new water and that new  
21      water will pick up contaminants that are present in trace  
22      amounts in the soil and that new water will then be removed  
23      and treated until the water meets the cleanup goals.

24          EPA has determined that it will be necessary to repeat  
25      the process six times to remove all the contaminants to the

1 stringent safety levels. Both EPA and Aerojet agree that  
2 the bulk of the contaminants will be removed in this first  
3 pass, dramatically reducing the amount of contamination  
4 early in the life cycle in this cleanup process. The speed  
5 of the cleanup is limited by the speed in which this water  
6 can be drawn from the aquifer without causing other adverse  
7 impacts. The system proposed is designed to remove the  
8 contaminated water in an optimum capacity.

9 The main point to understand is that whether the  
10 complete removal of the contaminants take 24 years or 240  
11 years, no additional contamination will occur while  
12 remediation is under way. The public and the environment  
13 will be fully protected and substitute drinking water will  
14 be provided.

15 Based on my experience, I am confident that new  
16 technologies and cleanup methods will be developed over time  
17 that will speed up this cleanup process.

18 Before the meeting started, Mr. Cargile and I had an  
19 opportunity to discuss the situation in Visalia where a pole  
20 yard for power poles was expected to take a very long time  
21 to be cleaned up. But new technology did come along and  
22 that site was cleaned up far faster than what was originally  
23 expected. The State Department of Health Services is  
24 reviewing the cleanup technologies that will be employed  
25 here. Until DHS determines that these technologies are

1 acceptable treatment options for drinking water, the water



2 will be pumped out and treated and the treated water will be  
3 discharged to the American River.

4 The low energy ultraviolet light technology designed by  
5 Aerojet, which removes NDMA and other contaminants, has been  
6 verbally approved by DHS for use on drinking water and  
7 should receive final written approval in the near future.  
8 Aerojet's biotechnology system for removing perchlorate is  
9 also under review by DHS, and Aerojet has worked vigorously  
10 to design and develop treatment technologies that can be  
11 used nationwide and around the world to address the  
12 difficult environmental and remediation problems.

13 With the use of these two technologies the cleansed  
14 water may be used to meet the capital valley's vital and  
15 growing water needs. I will encourage EPA and the state  
16 agencies overseeing this clean up to adopt either  
17 alternative, 4B or 4C, and to work with Aerojet to see that  
18 the state approval is secured for drinking water use of the  
19 discharged treated water. Because Alternative 4B is  
20 substantially less disruptive to the community, yet provides  
21 equal environmental and public health protections, it would  
22 seem to me that Alternative 4B makes more sense for the  
23 community, EPA and the state oversight agencies.

24 It is my understanding that the State Department of  
25 Toxic Substances Control and Central Valley Regional Water

1 Quality Control Board have already indicated their  
2 preference for Alternative B, the one supported by Aerojet  
3 as well.

4           Let me in closing say that the cleanup of the Aerojet  
5       aquifer and development of major drinking water supplies are  
6       critical elements of fostering and ensuring the economic  
7       vitality of this capital valley area. As the former chief  
8       environmental officer of the state, I am convinced that  
9       Aerojet, the overseeing state and federal agencies are  
10      proposing appropriate, dynamic, remedial alternatives that  
11      can confidently be embraced by all.

12           Thank you very much, and I would be happy to answer any  
13      questions if you have any.

14           MR. BERREY: In the proposed plan you will notice that  
15      there are estimates based on current capital costs, 30-year  
16      net present value and total remediation cost over the life  
17      of the remedy. The reason for that is because the remedy  
18      doesn't, you know, occur in the first 30 years, and we  
19      project it would take longer.

20           When you look at the 30- year net present value, which  
21      is basically saying, "Hey, if I take that money and stick it  
22      in the bank, if the remedy was going to take only 30 years  
23      to occur, I would have enough money to fund that remedy till  
24      its completion."

25           In that case there is a \$15,000,000 difference in favor

1       of 4B over 4C. If you look at the total remedy cost over  
2       the life of the remedy and if you assume that the difference  
3       is 108 years' difference between remedy 4B and 4C, in other  
4       words 4B takes 348 years to complete, then remedy 4C is less

5 expensive because of the cost that repeats itself over the  
6 time period.

7 So it means a complicated issue. And Aerojet, when  
8 they look at things, it is a preference to look at something  
9 in concrete terms for their SEC filings. Nobody likes to  
10 look at something that is 240 years out as a projection.  
11 Another point for the public, I would think if you just use  
12 an analogy like a sponge that you have at your house. You  
13 take that sponge and you dump it in dirty water and you  
14 squeeze it and you release it. Then you take that sponge  
15 and you put it in a clean water basin and you squeeze out as  
16 hard as you can to be able to get that contaminant out that  
17 is in there and let that clean water get into that sponge,  
18 more likely it is going to take you more than one squeeze of  
19 that sponge to get it cleaned. That is because the pore  
20 values that residual contaminants that are locked in the  
21 soil that just don't come out readily.

22 That is why we have been more conservative in our  
23 estimate of saying why it is going to take more than one  
24 pore value to clean up the contamination.

25 MR. HODGE: Mark Emmerson.

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1 MR. EMMERSON: Computers are marvelous. My name is  
2 Mark Emmerson. I am president of the Carmichael Water  
3 District.

4 That is the district, unincorporated area of the  
5 county. We service 40,000 people, around 11,000 customer  
6 accounts, and we provide or we try to provide clean, safe

7 reliable water to those ratepayers.

8 I am also employed with the Department of Health  
9 Services as a drug scientist, although I am not here  
10 representing the department in this capacity tonight. The  
11 impact of whatever solution you have is going to have an  
12 impact on Carmichael Water District from every indication.  
13 Mainly because you are going to be using the river as a  
14 dilution factor or as a place to go ahead and put the  
15 treated water, to essentially discharge it.

16 We are going to drink that, and so we have concern, a  
17 couple of concerns. I don't know if you are aware we just  
18 finished completing or are in the process of completing a  
19 \$25,000,000 water treatment plant. This plant is designed  
20 to deliver to our ratepayers eventually 22,000,000 gallons  
21 per day. It is a filtration, state-of-the-art treatment  
22 plant, and we are going to — we are rather proud of it. It  
23 will give good, safe reliable water and put us into  
24 compliance with the surface water treatment rule, one which  
25 we are not in compliance currently. We just jam a whole

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1 bunch of chlorine in the river right now and deliver it to  
2 our ratepayers, and the Department of Health Services says  
3 that is not acceptable. We are going to have to do some  
4 other means of treatment.

5 That treatment plant will take care of all of the  
6 biologic problems that we have, that we see, whether it be  
7 giardia or any other biologic pathogens. We will be taking

8 care of that.

9 The water that exists now, currently, is beautiful  
10 water. I mean the chemistry, looking at it from a chemical  
11 standpoint. I am a home brewer. I make beer, love making  
12 beer. It is a passion of mine. It is the perfect water  
13 right now for making good pilsner beer. I don't think any  
14 NDMA or TCE or perchlorate should enter into that particular  
15 equation because it might put an odd taste in that beer.  
16 Additionally, there might be some people within Carmichael  
17 who would not want to drink that particular water.

18 So whatever solution you have and the discharge that  
19 you do, there are concerns. We do have a couple concerns  
20 associated with any solution that you have. These concerns  
21 are going to addressed to you more formally in some comments  
22 and some letters coordinated with the City who also takes  
23 water from the American River. Whatever is discharged must  
24 meet the MCLs established by safe drinking water. That is  
25 — you should not be putting anything into the river,

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1 anything that should not be drinkable. That is what we are  
2 looking at.

3 There has to be a good monitoring and notification  
4 program, a requirement associated with that discharge, so  
5 that if anything does happen, if there is an occurrence of a  
6 problem we are notified so we can get off the river, get on  
7 our wells and take that mitigation step or to mitigate the  
8 problems associated with taking contaminated water. The  
9 monitoring program should try to be as realtime as

10 possible. I know that you can't - everything is a  
11 snapshot. But we are taking a look at frequency associated  
12 with those snapshots.

13 The system that you develop should be a validated  
14 system, with protocols and procedures, looking at equipment  
15 qualifications, the operation qualifications, and so forth,  
16 to make sure that that system is going to operate  
17 appropriately in all the conditions, worse case conditions  
18 included, so that we don't look at contaminating levels.

19 There has to be some method for identification of new  
20 contaminants that come up. TCE, perchlorate and NDMA are  
21 the three biggies right now, and that is our concern. There  
22 might be some other things lurking there that could come up  
23 or the treatment itself might contribute to other types of  
24 contaminants that would come up. That has to be looked at.  
25 There should be a method by which that treatment water that

1 is discharged must be looked at for the identification of  
2 new contaminants.

3 Finally, the mixing and dilution should occur in some  
4 type of controlled fashion. You should not rely upon the  
5 river or discharging it for a 50 dilution, 50 degree  
6 dilution factor. You are going to take the river water,  
7 have it do good mixing to meet those MCL requirements and  
8 then discharge it. Don't just put out, put the material out  
9 there and hopefully the river will dilute it. Make sure  
10 that the river is diluting it by having a controlled mixing

11 and dilution program.

12 The Carmichael Water District looks forward to whatever  
13 solution that you do come up with. We offer whatever  
14 expertise we have of services, and we are willing, very much  
15 have a good willingness to work in designing an acceptable  
16 solution.

17 Thank you very much.

18 MR. BERREY: First of all, the perchlorate and NDMA  
19 don't have an MCL. So what we are proposing is the low end  
20 of the EPA range, which is the ten to the minus six risk  
21 range. Both the perchlorate and NDMA will drive the  
22 treatment for all the other contaminants, so they will be  
23 cleaned up well below MCLs just because of the fact of the  
24 volumes that they have to go through to be able to get the  
25 remediation done.

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1 If there is anything I missed, Alex.

2 MR. MACDONALD: The discharge we are talking about, we  
3 are not relying on the American River using the dilution.  
4 The treatment, under the NPDES permit, they will be required  
5 to do best available technology for discharge of those  
6 contaminants, which are well below any MCL value. In fact,  
7 they are nondetect. VOCs are all below .5; NDMA is  
8 nondetect, in fact, to 1.3 parts per trillion. For  
9 perchlorate less than 4. We won't be able to see any of  
10 those contaminants in the discharge at all.

11 As for other contaminants, we are currently at Aerojet  
12 sampling their - actually, the extraction wells back on the

13 property that feed into the current system which are much,  
14 much higher concentrations than are sitting off-site. That  
15 is near the source area than looking for those other  
16 contaminants you are talking about.

17 So at the same time we have not found those under the  
18 current treatment system, using every type of analytical  
19 method that we currently have, including analysis for  
20 unknown compounds, running these tests for things that  
21 aren't on the normal scan and trying to run the analysis  
22 farther along so that we can detect any of these other  
23 unknown compounds. And we have not found those, which is  
24 good.

25 Plus the treatment train you are looking for treatment

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1 uses a biological system for perchlorate, ultraviolet light  
2 system for NDMA and air stripping for VOCs. Through those  
3 three processes, removing those chemicals, we also remove  
4 other compounds fairly readily. So we are pretty certain  
5 that will meet any NPDES permit we are going be writing for  
6 them.

7 The issue on realtime analysis is a tricky one because  
8 most of these contaminants you can't - it is not like you  
9 get instantaneous results like pH or temperature or  
10 something that we have a meter to read. We are working on  
11 looking at how they can do that in more realtime, actually  
12 just looking at the system and how it operates. Are there  
13 indicators within the system that will tell you that, hey,



14 something is wrong? You shut the system down very quickly.  
15 They have been operating UV systems for a number of years at  
16 Aerojet and the air strippers since 1982. We know they are  
17 fairly reliable.

18 The chlorine system is the new system on the block.  
19 This has been operating for a year now and meeting nondetect  
20 levels fairly consistently. We are very confident that with  
21 the three treatment system trains we are going to have on  
22 the treated water will discharge to the river, will meet all  
23 our requirements, which, as I said, is well below any  
24 drinking water standards.

25 Hopefully that will answer your questions. We look

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1 forward to seeing your comments.

2 MR. HODGE: Robert E. Smith.

3 MR. SMITH: My name is Robert E. Smith. I live here in  
4 Rancho Cordova.

5 Four years ago my wife passed away from kidney  
6 failure. Last week I was notified I might have the same  
7 thing. What World War II was was persecuting the Axis for  
8 crimes against humanity. To me this is a crime against  
9 humanity.

10 You have poisoned our water and all you think about is  
11 doing something that is going to take 240 years, which is  
12 not going to do me any good. It's not going to do my kids  
13 any good, and it's not going to do my grandchildren any  
14 good. The only thing that you can do now is make Aerojet  
15 build a big water treatment plant and purify that water so

16 we can use it. And we don't have to take and drink water  
17 that can still be contaminated. I don't care how hard you  
18 guys pump. It can still get into our water. It may not go  
19 a lot, but it can get enough.

20 And I am tired of this doggone company, big companies,  
21 screwing up our atmosphere, screwing up our groundwater and  
22 our water. Something's got to be done. EPA is supposed to  
23 be here to protect us, not the companies. And the same  
24 thing with the politicians. If they want to protect them,  
25 let's get them out of office, and let's get this stuff

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1 straightened up. I am getting tired of this baloney.

2 MR. BERREY: Maybe I didn't explain it well enough,  
3 but let me say that the 240 years is to be able to clean up  
4 the water between the set of wells that are on property that  
5 are going to be improved and the total plume wells that are  
6 off property that are installed to prevent contamination  
7 from continuing to move.

8 So these are installed within the first couple years of  
9 the remedy. And the intent at that point is to prevent any  
10 other contamination from moving off property, to protect the  
11 public. The difficulty we then have is trying to clean up  
12 the water between those two sets of wells. And nobody is  
13 drinking that water between the exterior total plume  
14 boundary system and the Aerojet property boundary that we  
15 have improved the contamination control on.

16 So, basically, in the first couple years, the remedy

17       when those pumps get on line and we have control of the  
18       groundwater, the public is being protected. The difficult  
19       thing then is restoring that aquifer between those systems  
20       to allow the water to be reused for drinking water. But  
21       nobody is using that water during that period of time. The  
22       public is protected.

23             Does that help, sir?

24             MR. SMITH: No, it don't, because it still gets into  
25       our water. There is no way that you can prove to me that

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1       it's not. You can stand there and say it is not moving, but  
2       I know enough to be about it that it's moving. And unless  
3       you're standing down there and got it dye-code to see where  
4       it is moving, then you don't know what is going on. And I  
5       am not stupid to a certain degree.

6             MR. BERREY: There is one other point. We do have in  
7       the estimate for the indirect reuse, the treatment plant for  
8       surface water treatment.

9             MR. HODGE: Nora.

10            MS. KOSTELNIK: First, I just wanted to say thank you  
11       for what Robert's saying, because later I want to say  
12       something about that.

13            THE COURT REPORTER: Your name first.

14            MS. KOSTELNIK: I am Nora Kostelnik.

15            A toxicologist friend of mine said that someone at  
16       U.C. Davis said that in about six months, roughly speaking,  
17       EPA supposedly is going to have some new standards on  
18       perchlorate. And that is my first question for her is she

19 wanted to know if we are coming up -- if all of us are  
20 coming up with a remedial plan, what if a plan gets approved  
21 before these standards come out? That is what she was  
22 concerned about. So that is an easy one, sort of easy  
23 question.

24 The second thing is that in the things that I have been  
25 able to find out, basically EPA is going to -- is the

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1 decision maker, and in a sense Aerojet and us, you know,  
2 regular folks here in a sense are kind of on the same level,  
3 that we are adding comments. They actually have another  
4 plan. So I wanted to encourage regular citizens to remember  
5 that and that I think from what I heard we can actually make  
6 a difference to say that there is a plan we prefer. All I  
7 have seen is two.

8 I for one prefer the EPA standard. And I'm just going  
9 to make a quick suggestion to us regular folks. If we can  
10 just try and take out the particulars of the two parties,  
11 like the EPA face of it and the Aerojet face of it, if we  
12 can just use common sense that any -- just the way humans  
13 work. If you have an institution who's founded on the idea  
14 that your job is to be sort of a watchdog for government and  
15 for companies, and then if you are founded on a business  
16 like any of us who has a business, we know that we need to  
17 be penny conscious, and that is not good or bad, that is how  
18 you run business.

19 So I would just like to ask people to consider that,

20       whether or not you think somebody is good or bad or  
21       whatever, use your common sense. If EPA is set up for this  
22       purpose, to be a watchdog, it is – you don't need to be a  
23       specialist or a rocket scientist to figure out that probably  
24       it is a better plan, the one that is more in depth. And  
25       obviously if you take a look at 4C, it is more in depth,

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1       with more extraction wells and closer up to the plume.

2           So, anyway, that is my suggestion. Also, you can have  
3       a voice and you can call this guy. His job is community  
4       involvement coordinator. And I'm thinking it is best to  
5       send him messages and tell him your name and say, "I support  
6       EPA's 4C measure." This is, like, what we do here. And it  
7       actually makes a difference, and they do hear your voice.

8           There is a lot of lawsuits going on, and I think that  
9       if a whole bunch of people call and say, "Look, we want 4C  
10      and we are the people who live here," that'd probably have  
11      an affect. When you go home and feel depressed, you might  
12      want to write to EPA, and Don Hodge, 1-800-231-3075. He  
13      also has E-Mail. You can get it from him. Those are the  
14      easy parts.

15          The larger picture that I am coming to for myself that  
16      particularly Robert brought up and the other woman. I think  
17      her name is Laurette Laurent, talking about Folsom. All of  
18      us, we have our jobs that we have to deal with. We are all  
19      specialists in something. And I think that we are what we  
20      do. And even if we do have good intentions, it is really  
21      hard to get outside of that box. I feel like what Robert

22 and Laurette did for me, I think that is her name,  
23 especially is remind me of what the elders in my community  
24 talk about which is the Web and the larger picture, how  
25 everything interacts.

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1 One of the reasons we are in this problem all together  
2 is that since the '50s the scientists didn't have that much  
3 information. We have more information now, and there is  
4 lots of other stuff in the future we are going to find out  
5 about. That is something that keeps continuing. One thing  
6 that we've always known, and that none of us wants to deal  
7 with when we go home, is the fact that this city and lots of  
8 cities in the U.S. are growing very quickly, and there is  
9 this growth. This word that is being thrown around; it is  
10 called sustainability. And when you grow too quickly, you  
11 can't catch up to learn about what you're doing and do  
12 things sustainably.

13 My agenda - and I'll make this really short, I will  
14 try to. My agenda is to use the model that Curtis Park  
15 did. Just recently in the Bee, and I can give anybody a  
16 copy of this article who wants it. Just on the 10th this  
17 article came about Curtis Park and the United Pacific  
18 Railroad that had a lot of pollution going on.

19 Well, Curtis Park got really organized. We are not a  
20 city yet, but we can still do what Curtis Park did. And I  
21 am just going to quote a paragraph really quickly.

22 Several years ago United Pacific Railroad had devised a

23 plan to eventually build offices, homes and condominiums on  
24 the site. The site which has contaminants in it.  
25 Neighborhood activists, people like me, who derisively

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1 dubbed the condominium "Superfund condos" because residents  
2 wouldn't be allowed to dig in their backyards.

3 I think it was EPA who put signs like don't dig in your  
4 backyards. We have to figure out what is back there. So  
5 pressed for a higher level of cleanup, this is what the  
6 neighborhood people like us organized. And let me tell you  
7 that these people were not specialists in toxicology.  
8 That's their job. When they tell you there is poison there,  
9 Aerojet and EPA will agree there is a poison and there is a  
10 problem. Then we all fight from then on.

11 Basically, my agenda is I want to slow things down.  
12 These guys can't do it. They work for the EPA. They have a  
13 different job to do. So, basically, Curtis Park succeeded  
14 in getting a law passed that bars the State from signing off  
15 on any cleanup until the City decides what it wants to see  
16 built on the site.

17 So to end my speech what I would like to say is,  
18 besides please write and tell the EPA you prefer their plan,  
19 if people would like to help me organize for the future.  
20 Because if you're a business, you are going to want to sell  
21 off land. That is just common sense. I would like to be  
22 prepared just in case. Hopefully nothing will happen. But  
23 just in case the community feels like I might be able to  
24 count on Robert and some other people, if you want to join

25 with me as an artist who has video and paper and pens and

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1 all that kind of stuff, if in the future we don't feel that  
2 cleanup has been done well enough, which some people here  
3 feel might happen, we can let people know who are  
4 prospective buyers of the place. We can give them some  
5 information and say, "Hey, you do the math. You figure it  
6 out."

7 Because the bottom line is that if I knew that my house  
8 was on a Superfund site, which I was not informed, I would  
9 not have bought the house, and I know I couldn't be the only  
10 one. So I want to get information out there visually on  
11 camera. And if other people want to join me in the future,  
12 I'd be glad to join with them and have some fun.

13 Thank you.

14 MR. BERREY: I would like to go back to the first  
15 couple questions you asked. The EPA is having an external  
16 peer review of the data that has been generated on  
17 perchlorate, and that is anticipated to occur in June.  
18 This has been a long strenuous process of years of  
19 gathering data and then finding new strings that need to be  
20 followed to their conclusion because it is new science, and  
21 it's taken a while.

22 But that external peer review is the way EPA operates.  
23 In other words, first of all, they do an internal review and  
24 all the ten regions agree on an approach. Then that is sent  
25 out to the public for an external peer review of scientists



1 and peers. If they agree, then it moves forward for  
2 recommendation for a new standard.

3 Currently the EPA has looked at the data that has been  
4 provided by Aerojet and the remediation in the first 30  
5 years for remedy for 4 ppb for perchlorate or 40 ppb for  
6 perchlorate, there is no difference because the plumes are  
7 so close together that the remedy that you install over the  
8 first 30 years is going to cost you the same.

9 So in answer to your question that if the remedy goes  
10 up, and we don't anticipate it going up much higher than  
11 that, that there won't be a difference. If the remedy were  
12 to go below four and then we would determine that that is an  
13 unacceptable part of the risk range, then we would have to  
14 amend the record decision for a lower cleanup number.

15 MR. HODGE: I will just add one other thing. You can  
16 call me on the 800 number or send me E-mail or fax me. You  
17 can also send Charles E-mail. And both of us have our  
18 contact information on the fax sheet, the proposed plan fax  
19 sheet.

20 Feel free to send either of us information. We will  
21 make sure it gets to the right people.

22 Next speaker is Larry Ladd.

23 MR. LADD: Good evening. My name is Larry Ladd. I  
24 live at 11064 Santa River Court in Rancho Cordova,  
25 California, and I have four questions. Before I start with

1 the questions I would like to thank you guys for adopting  
2 such a strict standard in drinking water. There is no doubt  
3 in my mind that 1.3 parts per trillion of NDMA and less than  
4 4 parts per billion of perchlorate is protective of public  
5 health.

6 I want to thank you for adopting that instead of -  
7 given the fact that we started the process. Three years ago  
8 Aerojet said they had a study that said that 40,000 parts  
9 perchlorate was safe. I am glad you adopted the standard  
10 that you did.

11 And the four questions I would like to ask - which  
12 would be better, I ask a question and elicit a response or  
13 just ask four questions?

14 MR. BERREY: Probably get better response if we do it  
15 one at a time.

16 MR. LADD: First question concern is on - and most of  
17 you heard these or read them on E-mail before - is whether  
18 we fully address the full extent of the perchlorate from  
19 Aerojet? And if you look at the history of perchlorate at  
20 this particular site it is a very interesting history. In  
21 1963, January 1963, the State of California surveys around  
22 the Aerojet site and Mather Field for perchlorate. And then  
23 the admiral who is the father of the Polaris missile becomes  
24 vice president of Aerojet, and the monitoring stops. Then  
25 State Water Board Order 133 comes out and says certain

1 compounds that may degrade groundwaters cannot be disposed  
2 of, such as ammonium and potassium perchlorate and  
3 contaminated trichloroethene are collected and sealed in  
4 approved containers and dumped at sea in approved dumping  
5 areas.

6 So the perchlorate problems sort of went off the screen  
7 in 1963. That admiral went on to be the Director of the  
8 CIA.

9 In 1979 when the process for the main gate of Aerojet,  
10 800 some-odd parts per billion, TCE was found in the  
11 drinking water wells that served Aerojet Federal Credit  
12 Union. And Aerojet said, "That is not our TCE. If it was  
13 our TCE it would have a perchlorate in it." So the State  
14 Water Board goes out and tests and finds 300 parts per  
15 billion of perchlorate. And partly because of that process  
16 the Superfund was born.

17 But when this program was established, the vice  
18 president from Aerojet became the head of the Superfund and  
19 perchlorate problems were dropped off the screen again. I'm  
20 confident that you're addressing – and the name of that  
21 head is Rick Lavel. This is the plume I would imagine that  
22 comes from the dumping of perchlorate in the late '70s and  
23 early '80s.

24 My concern is the perchlorate that was in the earlier  
25 years of Aerojet, from 1956 to the early '60s, back when I

1 presume it was discharged into the American River and into

2 an active dredger mine, which was more diluted at that time.  
3 That would be the perchlorate concern that was addressed in  
4 the 1963 report. My concern is that that water – the  
5 perchlorate may be a very low level but is further  
6 downgradient towards Watt Avenue, near the Rosemont, Lincoln  
7 Village, that area. And I am not concerned about the one or  
8 two three parts per billion perchlorate. My concern is that  
9 there may be other contaminants at a lower level that could  
10 have a toxic affect. I understand from your limit you are  
11 going to be looking for aquifers less than 4 parts per  
12 billion. That is very protective.

13 I would suggest before you start that drilling process  
14 you might be more economic to use the best available  
15 detention technology for perchlorate to research all the  
16 drinking water wells on down to Watt Avenue. My  
17 understanding is that at Sunnyvale – I forget the name of  
18 the outfit that developed the IC. They can get a hundred  
19 parts per trillion now in drinking water. There is some guy  
20 with the Research Council of Canada, 50 parts per trillion.  
21 Use that technology to sort of resurvey to see if there are  
22 any regions with low level perchlorate that perhaps you have  
23 another problem that you need to address. Since you'd like  
24 to sort of find a solution, you might want to consider doing  
25 that.

1 MR. MACDONALD: I talked to you about this at the CORE  
2 PAC meeting on Wednesday. Currently there might be low  
3 level concentrations of perchlorate below four that are past

4 the plume you defined. Talking about this past being  
5 dumping of Aerojet perchlorate well pass down towards Watt  
6 Avenue, I don't see where that is likely to occur. Where  
7 perchlorate was discharged on Aerojet was back on the  
8 facility. Groundwater does not flow that fast or you would  
9 have found in 1963 perchlorate five miles from the site. If  
10 you look at groundwater flowing at 500 feet per year where  
11 the discharge was occurring, you'd see where the extent of  
12 the plume is that we know of today from Aerojet. I would  
13 say we know where the perchlorate is from Aerojet. Past  
14 disposal of other contaminants would have occurred in the  
15 same manner. I don't see where we have to go -- we will  
16 take it under consideration. But we have sampled all the  
17 Citizen Utility's wells which are basically from Arden  
18 Cordova Water Services which is right near Mather Field to  
19 west, towards Watt Avenue. All those have been nondetect  
20 for perchlorate and nondetect below four, obviously.

21 Department of Health Services hasn't required them to  
22 sample for anything else besides VOCs in the wells. And  
23 VOCs are all nondetect, except for the major plume which is  
24 a different issue. We are looking at whether we can achieve  
25 reliably less than four in the future, but we haven't had so

1 far labs come to us. "We looked at that. We can achieve  
2 that on a reliable basis." It is hard to do it that if you  
3 have with one lab that says they can do it. You cannot  
4 verify that they are actually doing it right. If we can get

5 to how they do it, we got it down to 4 parts for  
6 perchlorate. We brought it down from 400 parts. If we can  
7 have more than one lab do it, we will gladly be able to look  
8 at some more sampling.

9 MR. LADD: Obviously the practicality is going below 4  
10 parts per billion depends on how you see you can do it. It  
11 is just a thought for future reference.

12 MR. MACDONALD: Sure.

13 MR. LADD: The next concern was in the realm of NDMA.  
14 In the four wells in northern Rancho Cordova where at least  
15 one time or another there has been transient detection of  
16 NDMA, also in the same census track where working in the  
17 Aerojet health system three years ago where there was an  
18 elevated incidence of cancer amongst females in the census  
19 track, just beyond the 99 percent confidence interval.

20 So while there is no way that I can imagine an  
21 transient hint of a couple parts per trillion NDMA might be  
22 responsible for that, there is a lot of uncertainty in terms  
23 of is there a larger concentration that would lead us to et  
24 cetera, et cetera. So, what I would ask is that before --  
25 obviously, these very conservative levels can go up once we

1 have better science and better margin of safety. I would  
2 ask before we turn those wells back on that we take a good  
3 look at this higher incidence of cancer and maybe do a  
4 health survey. If it looks like there is no relationship  
5 within no mechanism of NDMA, and I am going to submit a  
6 handout that I gave to the folks at CORE PAC that addressed

7       that, my request would be that before those wells are  
8       considered clear and turned on that this potential for  
9       association of health be addressed.

10       MR. MACDONALD: I understand your concerns, Larry. One  
11       of the things that we don't oversee, whether those wells can  
12       or cannot be used. We are overseeing the water that is  
13       getting to those wells. The Department of Health Services  
14       Office of Drinking Water regulates those water supply wells  
15       and tells the water purveyor at what concentrations they are  
16       allowed to use those wells and when they can or cannot.

17       So as our regulations sit here, we can't direct whether  
18       that particular water purveyor uses his well or not. He's  
19       under different guidelines. This information can be  
20       relayed back to the Department of Health Services.

21       MR. LADD: On that same note, I will take question four  
22       and move it up to number three. I saw very recently  
23       something where the Public Utilities Commission made a  
24       ruling in conjunction with the DHS where, if I understood it  
25       correctly, temporarily you can serve water that is one order

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1       of magnitude above the MCL. Is that correct? And so is it  
2       possible to say perhaps in times of drought when Folsom  
3       needs water and everybody needs water, that some of these  
4       wells that are shut down now can come back on line, at least  
5       temporarily?

6       MR. MACDONALD: My understanding that currently the  
7       Department of Health Services has interim action levels

8       that, say, for NDMA that are much higher than our cleanup  
9       number and up to 20 to up to 200 parts per trillion. They  
10      can use that on an interim basis, use it for a short period  
11      of time. You're allowed to do that. You have to notify  
12      your customers that you are going to be serving them this  
13      water. But, yes, it can be allowed to be used under the  
14      current guidelines. I don't work for that department, but  
15      that is my understanding.

16           MR. LADD: I believe the figure for perchlorate that  
17      DHS has come up with is 40 parts per billion.

18           MR. MACDONALD: It could be. I have not seen that  
19      number.

20           MR. LADD: Therefore, temporarily those wells, most of  
21      these wells come back on line if needed.

22           MR. MACDONALD: Arden Cordova Water Service would have  
23      to determine that they need those wells. Right now my  
24      understanding is that they have wells shut off at four or  
25      even well below 18, and their policy is not to turn those

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1       wells back on unless it is absolutely necessary. Currently  
2       they have an adequate supply.

3           MR. LADD: The last question has to do with Mitchell  
4       Junior High, something we've discussed before. I was hoping  
5       perhaps as part of the overall remediation, especially since  
6       perhaps you are going to be putting an extraction well on  
7       the Mitchell Junior High site, there is still an irrigation  
8       well that the school district runs. As part of this massive  
9       cleanup you can give some guidance to the school district as



10 to when they should either stop using that well, at what  
11 level of contamination they should stop using that well or  
12 not even bother with that and just give them an alternate  
13 supply since you are going to be out there doing piping,  
14 what have you.

15 It is a minor point, but it is one of those things that  
16 could be overlooked. If it is within the realm of doing  
17 cleanup, can you establish communications with the school  
18 district and work this out somehow?

19 MR. MACDONALD: Right. Aerojet's required and we take  
20 confirmation of samples periodically on sampling that  
21 particular well. We sample that on a monthly basis. Look  
22 at the concentration of perchlorate. You don't find NDMA in  
23 that well, but you do find perchlorate has gone up and  
24 down. Generally, they use those wells as irrigation only.  
25 So times you see perchlorate in that well is toward the end

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1 of summer. Then when you shut it off, you see nondetect  
2 perchlorate until the end of summer. Usually nine samples  
3 or so nondetect, three samples with hits. They all have  
4 been well below. I think ten or so has been the highest.  
5 But exposure to perchlorate is through ingestion, not  
6 dermal contact, inhalation or anything of that nature.

7 Aerojet's required to inform the school district on  
8 these results and keep them informed. The Department of  
9 Health Services, obviously if it is not a drinking water  
10 well, I am not sure who regulates them as a supplier.

11 MR. LADD: I guess my concern is since you're spending  
12 all this money to remediate the whole kit and caboodle  
13 anyway, isn't this the time sort of to take care of an  
14 alternate supply rather than to take the time and energy to  
15 monitor something? Granted, it isn't a problem now, but if  
16 something that is forgotten and left till later, that is  
17 just my suggestion.

18 Thank you very much, Alex.

19 MR. HODGE: That was the last speaker card that I had.  
20 Is there anyone else who would like to speak?

21 Why don't we just line up and we will take that  
22 order.

23 MR. WALGELL: My name is George Walgell.

24 And I was wondering how Aerojet has cleaned up its  
25 other sites in California, what record it has of cleanup.

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1 The cleanup here historically since they started has been  
2 the solution to pollution is dilution, and they're still  
3 doing it, the same technology. They pull the water out of  
4 the ground and they treat it for TCE with air stripper and  
5 they put the TCE into the air. This is another dilution  
6 situation where he dilute it into the air.

7 Another thing was said here that they brought up the  
8 groundwater pollution is getting to Watt Avenue. And I live  
9 by Kiefer Landfill and we've had a lot of problems out  
10 there. And I notice that the aquifers only travels, say,  
11 150, 500 feet a year, but your pH will change a great deal.  
12 It will travel 3,000 feet in a year. And so this is

13 something they could look for in the wells downstream  
14 because these chemicals may change the pH. And that is  
15 another thing that we ought to be looking at.

16 What I see here is Aerojet sort of schmoozing the  
17 public and bringing in officials to back them up. And I  
18 think the public is being badly served. Aerojet polluted  
19 the water in Rancho Cordova and it has a responsibility to  
20 replace it with clean water. It shouldn't be allowed to  
21 build housing on its property and use its contracted  
22 surface, safe water from Folsom.

23 Another thing that is going on that the wells that have  
24 been polluted in the Rancho Cordova area by Aerojet will  
25 come down to Excelsior Road and Florin Road and dig wells,

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1 pump groundwater from there, from our area, up through  
2 Mather, clean it in Mather, and use it to replace this  
3 polluted water from these wells that have been polluted by  
4 Aerojet. And this is sort of wrong when Aerojet has surface  
5 water, it should supply the water for the wells, not our  
6 area.

7 So, anyway, that is about it.

8 MR. MACDONALD: I can kind of address the last part of  
9 your discussion. There are actually many plumes out here,  
10 not all related to Aerojet. The one you talked about that  
11 is south of Aerojet that is potentially going on to Mather  
12 Field is from what we call the Inactive Rancho Cordova Test  
13 Site, which was owned and operated by McDonald Douglas and

14 Aerojet during various times. There is a plume of  
15 perchlorate coming off that site that's knocked out four  
16 wells within the five wells within the county water system.  
17 Aerojet and Boeing which has bought out McDonald Douglas are  
18 proposing to replace that water, drilling new wells.

19 Currently the Department of Health Services is  
20 prohibiting Aerojet and Boeing from putting the wells in  
21 closer to the plume area on Eagles Nest on southern Mather  
22 Field area. So the County is proposing to move these down  
23 to the North Vineyards area. That hasn't been decided where  
24 the wells could be dug, and that is out of my hands whether  
25 the wells get put in on Mather Field or they get put on

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1 down farther at North Vineyards. But that water is going to  
2 replace the lost water supplies due to the plume from the  
3 IRCTS, those five wells. It is not to replace the water  
4 supply up here in Rancho Cordova. That supply's being  
5 replaced currently by two new water supply wells that have  
6 been put in by, paid for by Aerojet. This interim supply  
7 from the City of Folsom and potentially another water supply  
8 well that Aerojet is proposing to put in in the American  
9 River Parkway. Then we will have the water from the  
10 treatment system going to the American River which then can  
11 be reused.

12 Those look like the options for replacing Rancho  
13 Cordova water and not the water used by North Vineyards or  
14 down by Mather Field at this time.

15 MR. BERREY: In answer to your first question about

16 other Aerojet sites, Aerojet is a PRP, essential responsible  
17 party along with other PRPs for San Gabriel, Baldwin Park.  
18 And they currently have a remedy that is similar to what we  
19 are doing here with water purveyors, only they are going to  
20 reuse the water as a drinking water source.

21 The treatment system may be a little different because  
22 there is a preference by the water purveyors for a  
23 perchlorate treatment system. It is a little different.  
24 But they have an agreement and they are proceeding to do a  
25 remedy, and as a matter of fact they've had financial

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1 assurances that they've put up for water purveyors for that  
2 remedy. That is the only other California EPA site that I  
3 am aware of.

4 Gerry, have I missed something?

5 MR. SWANICK: Not that I know of.

6 Does that answer your question?

7 MR. RASLER: My name is Mike Rasler. I am a resident  
8 of Rancho Cordova. I am also an educator, secondary and  
9 post secondary. My Doctorate degree is in health science,  
10 so you can pretty much see what my interest is.

11 I just in listening to everybody's comments and  
12 particularly your input as representatives from the EPA I  
13 want to support the 4C. I think as a resident specifically  
14 I am for the more aggressive approach. And as far as the  
15 disruption is concerned, that is an easy thing to put up  
16 with down Zinfandel or whatever. There are other

17 tributaries that we can take. I appreciate EPA's effort. I  
18 support it wholeheartedly.

19 MS. ARNOLD: My name is Marla Arnold. I have spoken  
20 before.

21 This is a little bit different, though, and I apologize  
22 for being late. The 4C that he was talking about is better  
23 than what they were doing the first time around,  
24 reinjecting it. But my main concern is that this -- from  
25 talking to other people I discovered that the pollution and

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1 the long years of taking it, that the pollution is heavier  
2 than water and that it is down in underneath. So my  
3 interpretation is what is going on, you have new water  
4 coming in and it is affecting and getting hold and  
5 intersecting with that area of pollution because of you got  
6 your water tables and it seems from the bottom -- from the  
7 top going down, and then it comes in like your caverns and  
8 that also reaches that area.

9 From what I gather you are doing nothing to go after  
10 the actual pollution and removing it. That to me it sounds  
11 like you are going after the fresh water that is on top that  
12 becomes recontaminated, that wasn't contaminated and this is  
13 what you're cleaning up. So I have heard nothing on any of  
14 the approaches that you have done that you are building any  
15 kind of wall to keep, to divert new water from reaching your  
16 plans that you show different levels of contamination.

17 So you are doing nothing to divert the water from  
18 reaching. You're doing nothing at the other end to build

19 any kind of a wall to where you can get to the contaminants.  
20 And even if you get to part of this, it still doesn't settle  
21 the part if we don't go after part of those contaminants.  
22 Then it is going to go down and get more water levels.

23 At least we are not -- the injection part is spreading  
24 it farther and farther away, which means you are making a  
25 larger pollution area, even though you might be in parts per

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1 billion, you know. You might be washing it out here, but  
2 you are getting it farther. And even though I don't go to  
3 church all the time, I have read somewhere in the Bible that  
4 -- what is it, woodworm or what, and one of these days we  
5 are going to have like what was it, one-third or two-thirds  
6 we are going to lose of our water.

7 Maybe if we don't worry about the money so much and  
8 give a little bit more effort than what you are doing at all  
9 levels that we might be able to avoid this.

10 Thank you.

11 MR. MACDONALD: Let me try to explain things a little  
12 simpler here. Map of Aerojet. What is all the source areas  
13 of contamination are sitting back here on the property, away  
14 from the property boundaries. The sources of perchlorate  
15 and contaminants are sitting primarily back in this area, up  
16 in here. This has seeped into the groundwater and migrated  
17 this direction off property.

18 You are correct, we are not actually going after these  
19 source areas under this operable unit. The risk to people

20 is due to this plume of contaminants that is sitting  
21 off-site. The risk isn't back here right now, at this time.  
22 If we let this migrate off-site, yes, that is where we have  
23 our risk.

24 The goal is to contain this risk, clean it up. And  
25 while this is being contained, obviously 240 years to clean

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1 this up, the goal is to come back in here and in the next  
2 several operable units. And one of the operable units is  
3 on-site source areas to address that contamination.

4 The first goal is to stop the risk and prevent the risk  
5 to off-site residences. Then to go back internally to go  
6 after the perchlorate and other contaminants on-site. The  
7 groundwater that would -- the rainfall that falls on Aerojet  
8 here, this area has been hydraulically mined, basically most  
9 of it down to a hundred feet. What rainfall falls on here  
10 is going through these source areas and picking up  
11 contamination. If you want to prevent water from making it  
12 in through the contaminant areas, you would have to pave all  
13 of Aerojet, divert the water around it. That is not going  
14 to happen.

15 MS. ARNOLD: In your presentation you are saying we  
16 are going after this first, and after 240 years we will --

17 MR. MACDONALD: No, no, no.

18 MS. ARNOLD: That is what it sounds like.

19 MR. MACDONALD: Excuse me, what I am saying is that we  
20 want to get this remedy in place and operating. Basically  
21 we are making the decision, going after this plume, starting



22 the cleanup. We are not waiting for cleanup to finish  
23 before we start here. This is the first one we are going to  
24 get in place. Then while we are getting that in place, we  
25 finished the investigation here. So we now know what

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1 remedies we can apply to this.

2 MS. ARNOLD: What would be your time span? Can't you  
3 get more than one thing going at a time? And can't you  
4 give us -- are you going to have the wells in place and the  
5 purification plan and start doing the other?

6 MR. MACDONALD: It is going consecutively. It would be  
7 very difficult to fund cleanup. It is not this plume. You  
8 are looking at -- there is this plume here. There is a  
9 plume currently being handled going underneath the American  
10 River, this direction, another contraction system. There is  
11 a plume coming off Aerojet in this direction. There is one  
12 coming off here.

13 We are actually attacking the worst case first. And  
14 then once we have a handle on all, making sure that nothing  
15 else is leaving the facility, then we are going back up to  
16 the plume in this direction. The current schedule we are  
17 negotiating with Aerojet, the next operable unit is the rest  
18 of the perimeter of the site. That is coming two years from  
19 now. And then once that's in place, then the operable unit  
20 for the interior portion comes in. It is not waiting 240  
21 years. It is within the next ten years' time frame.

22 MS. ARNOLD: That sounds like ten years too long.

23 MR. MACDONALD: Okay, we understand.

24 MS. ARNOLD: I mean, I was around at the first sales  
25 pitch, per se. And I feel as if the EPA and everybody is

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1 letting us down, that you are waiting for us all to die  
2 off.

3 MR. MACDONALD: Well, not like Ms. Laurent who lives  
4 off the property. I live on this map. I am a resident of  
5 this area, so this pollution goes underneath my house also.  
6 I'm concerned as anyone to get this pollution cleaned up. I  
7 understand by working this field for the last 15 years that  
8 things don't happen overnight. We wish they could. It's  
9 easy to get the contamination down there, but it is much  
10 more difficult to get it out.

11 MR. BERREY: As part of the first part of the  
12 presentation that I gave which you might have missed was  
13 that at least we anticipate six operable units for the site.  
14 And if there were none, let's say, in the desert someplace  
15 right now, and there wasn't any problem with drinking water  
16 supplies, we'd go after the sources because we could be  
17 trying to eliminate the threat.

18 But because the fact that we have a higher priority  
19 because of drinking water wells that are going down  
20 gradient, our first protection unit instead of being the  
21 source of remediation is to remediate, to protect drinking  
22 water so that you won't lose additional drinking water  
23 supplies. So that has been our priority.

24 MR. KERSHAW: My name is Tod Kershaw. Mainly I want to

25 agree with what George said. I feel like we are being

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1 schmoozed here. And I wonder if we can get a show of hands  
2 from Aerojet people or people who are here on behalf of  
3 Aerojet, being paid by them or asked by them to show up or  
4 whatever.

5 There is one person from Aerojet? That's it. I know.  
6 My point is that we have more Aerojet people or Aerojet  
7 spokespeople or paid liars or whatever we want to call them  
8 than we have citizens.

9 MR. ROONEY: You are asking for —

10 THE COURT REPORTER: I cannot hear you.

11 MR. KERSHAW: I am not calling you anything.

12 MR. ROONEY: Put it in the right context.

13 MR. KERSHAW: Okay. I will retract that statement.

14 One question I do have that's been on my mind since this  
15 whole thing started is there is some sort of litigation  
16 going on between, I don't know the EPA and Aerojet. I was  
17 wondering if we could know what that is and who is suing who  
18 or just what is going on with that.

19 MR. BERREY: Currently there is no litigation between  
20 EPA and Aerojet. There are various suits that are out there  
21 against Aerojet from — there is suit from a water purveyor  
22 against Aerojet. There is a suit from a water purveyor  
23 against the State of California. They didn't sue EPA. They  
24 sued the state because I believe they want to stay in State  
25 court versus going to federal court.

1 But currently there is no litigation suits between EPA  
2 and Aerojet.

3 MR. KERSHAW: Thank you. That was the main thing I  
4 wanted to know.

5 MS. HEPLE: Good evening. My name is Janis Heple.

6 The main thing I think I am going to ask some questions  
7 about tonight are the wells in the area. But for those  
8 people who are newly helping to represent Aerojet, I  
9 mentioned at the last meeting that I have been following  
10 this site, not -- as you know, I am doing it as a volunteer.  
11 I am not working at it hours per day, and I would have  
12 needed to over the last 22 years. And I want to warn you  
13 that it is very important to keep a lot of data on this.

14 At the last meeting the woman speaking on behalf of  
15 Aerojet who was on the panel talked about how it was  
16 impossible. She used the language, and there is people in  
17 the room who probably remember exactly what her language  
18 was, but she said it wasn't possible to detect perchlorate  
19 back in the late '70s. And in the EPA brochure they  
20 mentioned that it wasn't detected off-site. Well, that is  
21 correct. But it was detected on-site. It could have been  
22 being tracked all these years. And instead, it was  
23 reinjected.

24 I just want to mention something, that people know my  
25 name in the community. They know that I always try to speak

1 in a very straightforward fashion. I try to be really  
2 honest. I just want to say that I am disappointed in what I  
3 have seen happen over the last 22 years.

4 And along these same lines in a way I feel like the  
5 question I am going to bring up I know was brought up back  
6 in the hearings in 1983. And this is both wells, and the  
7 condition of all the wells in the area. I was fortunate to  
8 see a presentation this week on a well that I believe  
9 Aerojet paid for the closure of it and it was being affected  
10 by the perchlorate plume. It was basically a technique that  
11 exploded the well because half of it wasn't cased. It was  
12 450 feet deep. And I know that there are an awful lot of  
13 wells on Aerojet property. I know there is other wells.  
14 Larry Ladd just mentioned the well here on the Mitchell  
15 Junior High property.

16 And, then, Alex, you mentioned that DHS is involved  
17 with the wells, and maybe who knows who is involved with the  
18 nondrinking water wells. This issue we brought up 22 years  
19 ago. And I guess what I would like to know is how  
20 aggressively are all the wells being tracked? Are wells -  
21 from hearing this talk, I guess it was yesterday I got the  
22 distinct impression that very few wells in Sacramento County  
23 have had this technique utilized, and this technique is very  
24 valuable because it prevents the migration of the  
25 contaminants from one layer to another.

1 I know you described it the last meeting, that these  
2 plumes are at least at three different levels. But all the  
3 dialogue in these meetings, a lot of it has been just on  
4 just the movement of the contaminants. If you could share a  
5 little bit with the audience on what is being done in this  
6 area, how aggressive this area is, given the different  
7 agencies that are involved. How you - Larry brought up the  
8 potential for some migration past what has been defined. If  
9 that is the case, there could be wells in the way where  
10 contaminants could move? It would be valuable just to hear  
11 a little bit on this issue.

12 Thank you.

13 MR. BERREY: We do a monitoring evaluation with Aerojet  
14 every year. We review all the wells that are going to be  
15 sampled, what additional wells should be sampled, what  
16 additional monitoring we should be doing, changes of the  
17 monitoring protocols and that type of thing. It is part of  
18 the public record. You can look it up. The last one was  
19 2000, 2001. So we do look yearly at the wells monitored,  
20 either monthly or quarterly, depending on the contaminants  
21 that are found in the wells.

22 As far as destroying wells that aren't needed to  
23 prevent control of movement through the aquifer, generally  
24 Aerojet's wells are set up so that you have a multiple  
25 completion well which consists of three different wells. In

1 other words, each one in a different layer. So, in other

2 words, a single well doesn't have all three screens in it so  
3 that you wouldn't have cross-contamination moving between  
4 the individual wells.

5 Is that your area of concern or I am missing what you  
6 are looking for?

7 MS. HEPLE: I meant all the wells in the area, whether  
8 or not there has been a search for all wells in the area,  
9 whether they are lined or not. If not, is something being  
10 done, like the well that was just destroyed.

11 MR. MACDONALD: The well that was just destroyed, I  
12 required them to destroy that well in that manner. That was  
13 an abandoned well on a piece of property somebody was going  
14 to buy. Before they turned it over, the owner of the  
15 property was required to abandon that so it wouldn't cause a  
16 cross-contamination problem.

17 This a well that they discovered - there wasn't any  
18 DWR list of wells, so we didn't even know it was even there.  
19 They went on a search and they found this sticking up in the  
20 grass. All those types of wells that are abandoned on empty  
21 lots, we might not know every single one. If a well is not  
22 in use, Department of Water Resources requires construction  
23 and abandoning the well. They have to do it in a similar  
24 manner, which under certain standards to render that well so  
25 it will not cause cross-contamination. We have done a

1 survey of all the wells we know about. We've gone through  
2 all the records since 1978, '79 and actually they first  
3 started doing a search for all the wells, and we have that

4 list. And we know to track them as well as we can.

5 I am not saying there aren't other wells out there like  
6 that one we just discovered in an abandoned field. I don't  
7 know how to answer your question.

8 Does that answer your question?

9 MS. HEPLE: I think I was getting concerned since it's  
10 taken 22 years to get to this point on the cleanup that I  
11 was a little bit worried of how much has happened to the  
12 others and whether given that this was the first well  
13 structured this way, in Sacramento County are there any  
14 other wells that are partially unlined and also need to be  
15 destroyed?

16 MR. MACDONALD: Wells that are actually in use are not  
17 being destroyed even though they are within the plume or  
18 potentially near the plume. This is not the first time in  
19 Sacramento County that wells have been destroyed in that  
20 manner. On McClellan Air Force Base we had them destroy  
21 other water production wells that are not in use, using  
22 explosives, because there is no other way to do it. I don't  
23 see -- monitoring wells are constructed differently. They  
24 are much easier to destroy. They are only a ten-foot  
25 screen, usually, or a 20-foot screen that you can pump it

1 full of cement and destroy it.

2 Water supply wells, most of them are not in use  
3 anymore. I would have to go look through our records  
4 whether all the wells along Folsom Boulevard which used to



5 be supplying Rudy's Hideaway, the fire station, all those  
6 businesses along there, before City water came to them,  
7 whether those actually were abandoned in place or not. That  
8 would have been before my time. I would have to go take a  
9 look at that. Those would be a concern. Those are pretty  
10 shallow. They don't end that deep and they are within the  
11 plume itself. They are probably not such a concern as these  
12 400-foot wells would be a concern contaminating water from  
13 the upper aquifer and dropping down to a lower aquifer.

14 MS. ARNOLD: What has Aerojet done knowing the wells  
15 were contaminated? Have they made any efforts to go in and  
16 actually take out contaminants?

17 MR. MACDONALD: Aerojet is required to do a monitoring  
18 of wells, water supply wells, on a specified frequency and  
19 for certain contaminants. As Charles said every year we  
20 review the plan to make sure that we are sampling the right  
21 number of wells for the right contaminant.

22 MS. ARNOLD: They said they spent all this money and  
23 doing this for our benefit and they know they dumped this  
24 stuff because at the last meeting there was pictures of how  
25 they dumped all the stuff in the well. Aerojet has known

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1 this from what she was saying for 22 years.

2 Has Aerojet made any efforts to go in there and take  
3 out the contamination or have they just blown them up?

4 MR. MACDONALD: I think you are talking about - the  
5 wells you saw pictures of were on Aerojet property,  
6 basically was - the picture was of a disposal well that Mr.

7 Walgell brought. Correct?

8 And those are back on the property. Those are what I  
9 was talking about, the source areas, back on the  
10 contamination. Those are sealed. They are not used.

11 MS. ARNOLD: They were sealed, but no contamination was  
12 removed so they can seep over to the present?

13 MR. MACDONALD: Contamination is in the ground and the  
14 groundwater. Still back on the property. Correct, it is  
15 still sitting there.

16 MS. ARNOLD: In essence they have done nothing to  
17 remove the contamination to where other things, that if  
18 there was a well there to begin with and water seeping and  
19 got into it at one time so the flow of water made it to  
20 there, during different circumstances because there was a  
21 well at one time as you have water seeping down in other  
22 ways so they left it there. That is why we are having the  
23 240 years, for the last 22 years they haven't removed dirt  
24 or contamination and sealed it?

25 MR. MACDONALD: They removed some contamination. As I

1 said, our first goal here is to — as Charles mentioned, we  
2 are trying to protect water supply wells by going out and  
3 doing this first. The contaminants got into the ground,  
4 into the groundwater, many different ways: spills, placing  
5 it on the ground and in the pits and things like that. I am  
6 not sure that wells — these contaminants moved readily  
7 through the soil and down through the water.

8 MS. ARNOLD: Aerojet has not taken the initiative on  
9 their own, knowing that this problem existed, to clean or  
10 contain any of the contaminated dirt or anything. Is that  
11 right?

12 MR. MACDONALD: The first step that Aerojet undertook  
13 was to place extraction wells on the periphery of the  
14 facility to help control the plume so they would not migrate  
15 further off-site. At that time, that was 1981 through 1985  
16 when they put those in. That plume was already off-site at  
17 that time. So the plume had already migrated past the site.  
18 Their goal was to prevent further migration off-site. We  
19 are now addressing that plume that is off-site, which is  
20 much bigger than was originally anticipated, primarily due  
21 to perchlorate and NDMA.

22 MR. KERSHAW: Did they do it on their own initiative or  
23 at that time?

24 MR. MACDONALD: Which part?

25 MR. KERSHAW: Any of it.

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1 MR. MACDONALD: The peripheral wells they put in on  
2 their own volition, but it was in response to our lawsuit  
3 against them in 1975.

4 MR. KERSHAW: So it was not on their own volition.

5 MR. MACDONALD: We did not direct them to put those  
6 wells in place. It was part due to our suit against them,  
7 correct.

8 I work for the State of California. I work right over  
9 here near Mather Field. I work for Regional Water Quality

10 Control Board. You missed the first part of the meeting  
11 when he introduced the group here.

12 (Inaudible question.)

13 MR. MACDONALD: The American River treatment plant we  
14 also put in under State order to control the plume that is  
15 going underneath the American River. I talked about that  
16 last time I was here.

17 MR. HODGE: This is a great discussion. I really don't  
18 want to interrupt it. I would like to ask you to please  
19 just briefly state your name if you need to make a comment  
20 for the record.

21 Thanks.

22 Anyone else want to make further comment?

23 MS. YOUNTS: Rosemary Younts.

24 I just want to make sure the record was straight. In  
25 response to Janis' comment, I was the person that was on the

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1 panel at the last hearing and my statement was inaccurate.  
2 I believe Gerry Swanick jumped up, who is far more technical  
3 than I, and corrected the record. But I wanted to make sure  
4 that you understood that he did.

5 MR. ROONEY: Peter Rooney. I have a question about the  
6 problem of detecting the perchlorate. My understanding is,  
7 Alex, you probably know it better than I. Perchlorate at  
8 high levels was easily detectable for a long time. It  
9 wasn't until about 1997 or so when Aerojet's staff devised a  
10 method of finding perchlorate at substantially lower levels

11       that that is where we really became aware of the fact that  
12       — and I assume working with you, DHS or whoever they were  
13       working with — that this new technology is what has allowed  
14       the detect of the lower levels we are talking about now.

15               So it is really a relatively recent thing when anyone  
16       was able to detect this level that they can do now?

17               MR. MACDONALD: The perchlorate — elevated  
18       concentrations of perchlorate were not known about off-site  
19       until 1997. At the time Aerojet had a reporting level of  
20       400 parts per billion. At that time — previously to that  
21       perchlorate was not thought to be a concern at the lower  
22       concentration, so no impetus for Aerojet to do a lower  
23       concentration.

24               However, EPA then came out with a lower reference dose  
25       which lowered that number down to concern instead of being

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1       40,000 parts per billion, it lowered it down to 4 to 18  
2       parts per billion. At that time we asked Aerojet to look  
3       into making an analytical level down that low. And at that  
4       time they started doing that. We had, the Department of  
5       Health Services and Regional Board contract labs also doing  
6       that. In 1997 we got detection level down to 4 parts per  
7       billion. Aerojet at the same time did. At that time we saw  
8       how big the problem was off-site.

9               MR. HODGE: Is there anyone who hasn't had a chance to  
10       speak that would like to?

11               MR. HEAD: Good evening. My name is Wilson Head, local  
12       resident. Recognize a couple faces here.

13 THE COURT REPORTER: Move closer to the microphone,  
14 please.

15 MR. HEAD: My name is Wilson Head.

16 I am a local resident, and I have said I recognize a  
17 couple faces here. It's been a long time. Hello, but  
18 anyway, I just had a couple real simple questions.

19 Number one, I was wondering if there is any behavioral  
20 modification we can make as citizens to mitigate the health  
21 risks associated with these contaminations? Can we drink  
22 less water or take fewer showers? I am not being sarcastic,  
23 but would really like to know.

24 MR. SMUCKER: We don't believe you are being exposed to  
25 the stuff. So, you don't need to modify your behavior.

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1 MR. HEAD: When you say the 1.3 parts per trillion,  
2 there was an implication of 1 in 1,000,000 cancer case or  
3 something.

4 MR. MACDONALD: Right. I am not a risk assessor. If I  
5 mess up, you step in. 1.3 parts per trillion is the  
6 estimated incremental one in a million cancer risk. In  
7 other words, if a normal person drinking two liters of water  
8 per day would increase their risk of cancer one in a million  
9 times by doing that, with this concentration of 1.3 parts  
10 per trillion over your life time. In your lifetime, what is  
11 your normal lifetime cancer risk? One in three or one in  
12 four. So it is - you're adding another one in a million on  
13 top of that risk.

14 MR. HEAD: But there is a hundred thousand folks here  
15 in Rancho Cordova. So that makes it one for every ten  
16 persons who will likely experience -- no, that's not right,  
17 the right math.

18 MR. MACDONALD: One-tenth of a person will.

19 MR. HEAD: In Rancho Cordova.

20 MR. MACDONALD: Correct.

21 MR. HEAD: Thank you.

22 MR. LADD: On the detection limit for perchlorate,  
23 which is a very crucial factor, the IC two used to develop  
24 or detect for perchlorate as presently being used as an  
25 improved method was developed in 1983 by the Dyanex

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1 [phonetic] Corporation. In the first perchlorate conference  
2 in Las Vegas Dr. Peter Jackson, who works for Dyanex,  
3 stated that in 1983 the ability to detect for perchlorate at  
4 a level of 1 to 200 parts per billion percent using that IC  
5 method existed. It was adopted by the -- the problem with  
6 using the method in the plumbing at the time, it would take  
7 an hour before you would get the signal for perchlorate.

8 In 1986 the FBI -- Dyanex altered the plumbing so that  
9 you could basically use the method now to detect a couple  
10 hundred parts per billion. So in all practical purposes the  
11 ability to detect for perchlorate at a couple hundred parts  
12 per billion existed when the consent decree authorized the  
13 use of competitive electrodes. So there was no  
14 technological barrier to tracking this plume given the core  
15 of 8,000 parts per billion. It is simply not true.

16 MR. CARGILE: It is true, Larry. There was — at the  
17 time there was no health concern associated with the  
18 perchlorate.

19 MR. LADD: The standard of 4 parts per billion was set  
20 in 1992 when a model commission by Aerojet said there was  
21 perchlorate in the Arden Cordova water supply.

22 MR. CARGILE: You're just talking about in the 1980s  
23 and in 1992.

24 THE COURT REPORTER: Mr. Cargile, you need a  
25 microphone.

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1 MR. CARGILE: You just discussed in the 1980s and 1992.

2 MR. LADD: The concern was raised in 1992 at 4 parts  
3 per billion. The technology existed at that time to track  
4 the plume.

5 MR. CARGILE: All right. We won't argue with that. In  
6 1986 it was — perchlorate was very important to us because  
7 it was used to track Aerojet's TCE plume. At the time the  
8 people who understood the risks associated with perchlorate  
9 said there wasn't a risk. But perchlorate was very specific  
10 to Aerojet. So if we found TCE and it had perchlorate in  
11 it, we knew it belonged to Aerojet. That is why we tracked  
12 it. We looked for it. It is in our record all the way back  
13 to 1979. But the health risk wasn't determined until 1992.  
14 So, you have the ability, but is it a common ability that  
15 every lab can do?

16 MR. LADD: The issue is most intense to what happened



17 in 1992. You did use your effort in 1996, but what happened  
18 after 1992 was inexcusable.

19 MS. ARNOLD: My name is Marla Arnold.

20 And back in the '70s I was working on Aerojet property,  
21 and I had heard that they had their own water purification  
22 plant. And they were furnishing. It wasn't part of Arden  
23 Cordova, or whatever.

24 Can you tell me what they were looking for back then in  
25 that water?

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1 MR. MACDONALD: Aerojet was supplying its own water to  
2 its own.

3 MS. ARNOLD: Is there a possibility -

4 MR. MACDONALD: They supplied water, basically, I am  
5 not sure in the 1970s, but they have been getting water from  
6 the City of Folsom for many - since they started out there.  
7 And the water comes in two ways now. Part of it is treated  
8 water and part is untreated water. And they provide  
9 treatment for that water for their system. It is water  
10 coming from Folsom Lake. That contract's been around  
11 forever as far as I remember.

12 MS. ARNOLD: I had hear that they had their own water  
13 purification plant, and I was curious.

14 MR. MACDONALD: Starting 1981 they had a groundwater  
15 extraction and treatment system to help purify the water.  
16 That water was discharged to the ground, actually percolated  
17 back into the aquifer. They didn't serve that water to  
18 anybody to drink.

19 MS. ARNOLD: What about what you just said was 1981?

20 MR. MACDONALD: Right. Before that the only water  
21 purification that I understand they were doing would have  
22 been for their own water supply.

23 MS. ARNOLD: So it would have been their own ground  
24 supplies?

25 MR. MACDONALD: They did not use their own wells on

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1 their property after -- I have to go back to Aerojet to find  
2 out. I wasn't around obviously working on the project in  
3 the early '70s to find out where Aerojet got the water  
4 from. We could find that out.

5 MS. ARNOLD: I would appreciate it.

6 MR. MACDONALD: I will check into that.

7 MR. KERSHAW: Paul Kershaw.

8 I want to try this again. First of all, how sure can  
9 we be that there isn't pretty significant soil contamination  
10 on the Aerojet land? Sounds to me like quite a bit of glop  
11 has been dumped there?

12 MR. CARGILE: There is.

13 MR. BERREY: In the case of NDMA that goes to  
14 groundwater fairly quickly. Our sampling has indicated very  
15 little soil contamination with NDMA because it floats  
16 through to the groundwater.

17 In the case of perchlorate there is significant soil  
18 contamination with perchlorate.

19 MR. KERSHAW: Are there other things that don't wash

20 out of the soil pretty well and they are still stuck there  
21 and haven't gotten into the groundwater?

22 MR. BERREY: We have had some traces of metals and some  
23 of these other types of things, machine-type of operations,  
24 and those would be part of the surface cleanup.

25 MR. KERSHAW: So the surface cleanup would have to be

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1 done to very good standards before they could develop it?

2 MR. MACDONALD: They couldn't develop it. Who would  
3 buy it?

4 MR. KERSHAW: Sounds like Folsom would be happy to get  
5 it.

6 MR. BERREY: We would go through a site assessment. We  
7 would evaluate if the property was clean. If the soil was  
8 clean, the EPA policy allows for the redevelopment of the  
9 soil because it is clean. It may have contaminated  
10 groundwater underneath it. And it may require land use  
11 covenants or some kind of type of restriction on access to  
12 water. But because of the concern of tax base and that type  
13 of thing, being able to make the land more productive, EPA's  
14 policy is to allow clean land to be redeveloped. That is a  
15 national policy.

16 MR. KERSHAW: So the land that Aerojet wants taken off  
17 the NPL, what land is that?

18 MR. BERREY: There is approximately -- initially there  
19 was approximately 3,500 acres that Aerojet was putting  
20 through its site assessment. That is down to something like  
21 about 3,000 acres. And that area is primarily land that

22        hadn't been associated with their operations. It was land  
23        that either was a buffer or was -- well, just call it  
24        mostly undeveloped area that was around their property.

25            MR. KERSHAW: But still, to be delisted or taken off

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1        the NPL, that would have to be tested and make sure it is  
2        clean.

3            MR. BERREY: For us to say something shouldn't have  
4        been on the NPL in the first place requires us to make an  
5        assessment that the land is clean, yes.

6            MR. KERSHAW: The other thing I want to get to, I was  
7        -- there is no litigation apparently. But from something  
8        somebody said earlier I was wondering what negotiations are  
9        going on and what the ramification is of the negotiations  
10       and how maybe that can sort of evolve into a lawsuit.

11           What I am saying is I feel like there is foot dragging  
12       going on here mainly on the part of Aerojet. They don't  
13       want to spend money, which is understandable. I am trying  
14       to understand what is going on here.

15           MR. BERREY: What we have with Aerojet today is a  
16       partial consent decree, and that was done in 1989.

17           MR. KERSHAW: Can we have an explanation of what that  
18       is?

19           MR. BERREY: I am getting to that part. In the partial  
20       consent decree was for remedial investigation and  
21       feasibility analysis for the entire Aerojet site, the whole  
22       8,500 acres and for associated pieces of property that were

23 related to off-property contamination that they may have  
24 leased or owned during their time.

25 The negotiations that are going on now are to modify

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1 the consent decree to allow us to be operable units, to  
2 break the site into pieces so we can get to remediation  
3 faster instead of trying to do one great big operable unit  
4 of the site because we get buried in paperwork.

5 MR. KERSHAW: So this is what EPA wants to do?

6 MR. BERREY: This is something EPA and the State both  
7 want to achieve with Aerojet. But you cannot — there is a  
8 very high standard on consent decrees. EPA would have a  
9 difficult time unilaterally trying to convince the judge  
10 that we shouldn't replace this consent decree. It is much  
11 easier done if it is a voluntarily-type of agreement. So we  
12 are trying to work with Aerojet to do that.

13 MR. KERSHAW: Aerojet could use that leverage to get 4B  
14 instead of 4C?

15 MR. BERREY: They could try. But public comment is —

16 MR. KERSHAW: Public comment helps.

17 MR. BERREY: But basically what we would do is what is  
18 appropriate for the public protection and public health.  
19 That is our objective. The next remediation that we want to  
20 do, perimeter groundwater, that isn't proceeding because we  
21 haven't got the consent decree modified to allow the next  
22 operable unit to happen. So that RI/FS isn't occurring.

23 MS. MOORE: We tend to talk an awful lot about the  
24 technical process that we go through in Superfund. We come

25 out to public meetings because that is usually a primary

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1 concern is what are you going to do to technically clean the  
2 site up.

3 We have kind of a parallel process that goes along with  
4 our technical cleanup and investigation process; that is  
5 called an enforcement process. In that process that is  
6 where we end up with agreement and consent decrees and  
7 orders and all those enforcement terms that you throw  
8 around. We teeter very closely with the whole litigation  
9 and court system as we do these things. Because EPA holds  
10 the primary responsibility for choosing cleanups, and we --  
11 our first attempt is called enforcement first. We want to  
12 first ask that the responsible party do that cleanup.

13 This is a situation where we are in with Aerojet. We  
14 are about to make a decision of what we think is the best  
15 option, given all of the input that we hear from everyone.  
16 And as I said, community and state acceptance is very  
17 important to us.

18 From that we will make that decision in our Record of  
19 Decision. We will then offer to Aerojet, "Do you want to do  
20 that?" We can enforce it. We can require. We can order.  
21 We can use all of these enforcement tools that we have  
22 through the court systems to enforce that these things get  
23 done and these agreements are set.

24 The consent decree, the partial consent decree, that we  
25 talked about, is filed in federal court by the Department of

1 Justice for us. So that is why you hear an awful lot about  
2 litigation. Because as we have disputes or concerns under  
3 that, we always end up in court to work those out in front  
4 of a judge who is the original judge who put this partial  
5 consent decree in place.

6 As we move forward we make more and more decisions to  
7 clean, as we explain the different operable units in the  
8 coming years, each of those will be filed with the court  
9 and agreements as to what Aerojet will do.

10 We sincerely hope and expect that Aerojet will agree to  
11 do everything that we think is right to be done to do these  
12 cleanups. And on a lot of our Superfund sites that does  
13 happen because many of the potential responsible parties do  
14 come forward and implement the cleanup as we choose in our  
15 Records of Decision. That is kind of a parallel process  
16 from enforcement process that happens in a association with  
17 making the decisions on where contaminants have been found  
18 to be as we do investigations and where we think cleanups  
19 are appropriate.

20 MR. KERSHAW: Does this mean if EPA chose 4C, Aerojet  
21 could say we have this partial consent decree which doesn't  
22 include the operable unit, so we will have to go to court  
23 over this? And this would mean that nothing happens for a  
24 while.

25 MS. MOORE: Partial consent decree concerns the issue

1 of remedial investigation and feasibility study. Us making  
2 a decision, Record of Decision for cleanup takes us, the  
3 enforcement process, outside of that agreement. We then  
4 will have to work with Aerojet on a new agreement for  
5 cleanup. If we chose 4C, we will, of course, through our  
6 enforcement policy be asking them to implement 4C. From  
7 there we go into negotiations.

8 MR. KERSHAW: How can they justify not implementing  
9 4C? What tools do they have to say, "No, we don't want to  
10 do this"?

11 So, if I were, if I read in the newspaper that EPA's  
12 choice 4C and Aerojet's spokesman said blah, blah, blah, or  
13 spokeswoman said blah, blah, blah, how do I interpret this?

14 MS. MOORE: This is the process that is going on right  
15 now, the give and take of what is technically appropriate to  
16 do. We believe that 4C is above -- the chart that Charles  
17 put up with nine criteria. We feel that it is feasible,  
18 that is implementable, that it can be done, that the cost is  
19 not significantly different. We feel, we hope the community  
20 accepts it. We can go through nine criteria and show why we  
21 chose what we chose.

22 We have not made that. We will make that actual  
23 decision after we get all the input. If Aerojet proves to  
24 us that another alternative meets those criteria, and we  
25 come out with a different alternative, just as if the public



1       came here today and said, "We don't like that alternative.  
2       We think that this one is better based on these criteria  
3       that we set out in a regulation." Then we would consider  
4       that as we go to make our decision through this process. We  
5       kind of are in the middle of that now. That Record of  
6       Decision will document where we are at.

7               We continue to debate with Aerojet on what is the best  
8       alternative, and we have technical representatives here.  
9       Our lawyers, their lawyers will sit down and work out a  
10      final agreement. We technically sit here and say 4C is our  
11      preferred alternative.

12             MR. KERSHAW: Thank you. I want to go on record of  
13      being in favor of 4C, too.

14             MR. SOMER: Ellic Somer again.

15             You said that there was a time when we didn't know the  
16      perchlorate was a hazard. And how do they determine what  
17      chemical is a hazard? I am just curious on that.

18             How do they spot that perchlorate might be a health  
19      hazard?

20             MS. UNDERWOOD: I believe, my understanding, and, Stan,  
21      correct me if I am wrong, Region 9 asked their toxicologist  
22      back East because they knew perchlorate being an issue out  
23      here, could you review the data on it and find out what you  
24      think about the toxicity of it. I believe that was done  
25      back in '92, '93. So that was the first time. And I will

1       tell you why.

2           Because industrial chemicals or chemicals that are used  
3     in the industry have a very low threshold of toxicity  
4     studies that need to be done before they can be introduced.  
5     It is not like a drug. If you are a drug company and you  
6     want to introduce a new drug, you have just a slew of  
7     different toxicity tests that you must run on the chemical  
8     before you introduce it and be allowed by the Food and Drug  
9     Administration to use it as a drug. Same way if you want to  
10    add something to food.

11           Industrial chemicals are not that. There is very low  
12    threshold of tests that need to be done before you introduce  
13    the chemical. Most of the testing that ends up being done  
14    on industrial chemicals is after they become pollutants in  
15    our water supply and our air supply, et cetera. And we say,  
16    "Geez, what is the toxicity of this thing?" And we all  
17    scurry about to figure out what the toxicity is. And  
18    perchlorate is sort of the same, an example of that.

19           MR. SOMER: I figured it might be a good idea to  
20    listen.

21           MS. UNDERWOOD: Sorry to say but that is where the  
22    legislation in this world for industrial chemicals stands  
23    right now.

24           MR. SOMER: Thank you.

25           MS. ARNOLD: Marla Arnold again.

1           My question is out of ignorance. It is again in the  
2    form of a question. It's similar to thinking about how  
3    asbestos was okay until it dried and moved into the air

4 particles and got in. I think it was Stan that mentioned he  
5 wasn't sure if the pollution had hit the area.

6 My question is: That like my house was built in the  
7 '60s and there was - Aerojet knows what they were putting  
8 in the ground and et cetera, from lead and other types of  
9 stuff. I don't have all the data.

10 Is it possible that this form could have gotten in our  
11 pipes and built up like your arteries and clogged, and if it  
12 flakes off, come in and contaminate us? Has anybody thought  
13 to go into a home and check one of the old pipes to see if  
14 we are being continuously - you know, you have your fresh  
15 water that you are worried about. So that was my question.  
16 Have they thought about checking the pipes, you know, like  
17 the air, the water, the buildup. I don't know all the  
18 different kinds of chemicals in lead that builds up and  
19 what happens if it flakes off and gets to us?

20 MR. SMUCKER: Well, the answer to your question about  
21 as far as testing your tap water, you know, there is other  
22 things in your tap water beside what you can attribute to  
23 Aerojet unfortunately. You know, like your plumbing for  
24 example, if you have copper plumbing that could be a source.  
25 Could be source of copper. Could be a source of lead.

1 Doesn't mean it comes from Aerojet.

2 Now if you are asking specifically about perchlorate,  
3 do we know whether it builds up in the pipes. Is that the  
4 question?

5 MS. ARNOLD: Aerojet has used all different types of  
6 chemicals and et cetera, with all different types of  
7 components which I don't know the names of all of them. So  
8 even though you have your chlorine and your other stuff that  
9 builds up in there, I am saying has anybody taken a pipe  
10 from, let's say, Paul Mitchell School that has been here all  
11 these years and looked at it and analyzed it to see if there  
12 is pollution there? Something that we hadn't thought about  
13 that is from cleaning these big engines and et cetera. Like  
14 you said, in the ground besides your perchlorate, your TCP  
15 and all this other stuff.

16 I said, I don't know the answer. I am curious because  
17 I know I changed the plumbing once a few years back and I'd  
18 seen a buildup. What happens if it breaks off? Is there  
19 stuff from what Aerojet used?

20 MR. MACDONALD: I sampled several taps from old  
21 homes.

22 MS. ARNOLD: The water is different, though.

23 MR. MACDONALD: I sampled water from the tap in the  
24 house, in the sink. And I have not detected any  
25 contaminants in those samples from things you would be

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1 looking for.

2 MS. ARNOLD: The water is different than the actual  
3 pipe. You've got movement and things breaking off.

4 MR. MACDONALD: These things you are looking at are  
5 very low concentration, and they are things that aren't  
6 things that aren't - things called scaling. Within a pipe

7       you have scaling occurring on the pipe. Usually that is due  
8       to calcium carbonate and minerals in your water that flake  
9       out. Or you might have zinc or sometimes they use certain  
10      water softeners which can fade out on your piping or your  
11      pipe will corrode.

12           These are things that – these contaminants that we are  
13      looking at aren't things that are going to adhere to your  
14      pipe material.

15           MS. ARNOLD: If you haven't analyzed one, then you  
16      don't know whether or not that stuff that you have used has  
17      created another problem that's similar to the – you know,  
18      we didn't look for it; we've only decided to look for it.  
19      This was my thing, would it really hurt to sample an old  
20      pipe to see what is in there, that maybe there is more to it  
21      than what you think is there?

22           MR. MACDONALD: It is possible. Sampling for NDMA on a  
23      pipe would be rather – don't know how to do that. We could  
24      figure it out.

25           MR. LADD: Along those lines in terms of the NDMA, I

1       was discussing with Robert why, you know, given the  
2       minuscule amounts of NDMA detected, could that possibly have  
3       a medical health effect, and his speculation as a  
4       hydrogeologist was to look to see if NDMA adhered to clay  
5       colloid. Because they do flush the system from time to  
6       time. And if you dealing with imprinting, the methylation  
7       not only methylates the site but it methylates the enzyme

8       that keeps the site clear.

9               So for a child, for example, if you had a big rush of  
10       NDMA when they were flushing the pipes, then you might do  
11       such a genetic damage. That was his question, as to whether  
12       it could collect in colloid and sort of low spots in the  
13       system, and when they are flushing the system everybody gets  
14       exposed to a lot more than what you are taking in, and is  
15       dangerous as well.

16              MR. SMUCKER: We do see some precipitation of, like,  
17       calcium carbonate. You have to keep in mind how much higher  
18       concentration we are talking about. We are talking parts  
19       per million. When we are talking about NDMA, if we are  
20       talking parts per trillion, if you imagine an Olympic size  
21       pool now not just one but a thousand of them, you add one  
22       drop of NDMA to those thousand Olympic size pools, you get a  
23       part per trillion. Now you are talking about maybe higher  
24       concentrations than a part per trillion, a part per billion.  
25       But those are still minuscule amounts compared to levels at

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1       which we see precipitation of salts and that sort of thing  
2       in the pipes. What we are talking -

3              MR. LADD: We are talking adhering to clay, not  
4       precipitation.

5              MR. SMUCKER: Maybe I'm still trying to answer her  
6       question, difficult question.

7              MR. MACDONALD: Larry, on the issue of colloidal  
8       adhesion, we know that carbon doesn't work on treatment of  
9       NDMA. It doesn't absorb the carbon very well. There is a

10 possibility that adhering to clay particles is probably more  
11 unlikely. In fact, it is probably washing through the soil  
12 column very readily. We sample actually sumps below where  
13 they actually disposed of the NDMA in water. We don't even  
14 find NDMA sitting there. There might be some adherence, but  
15 we don't see it.

16 MR. LADD: Is there literature on fate and transport  
17 for NDMA that I could look at?

18 MR. MACDONALD: Not that I have seen.

19 MR. SMUCKER: I mean there is some general  
20 information. If you want we can provide you with fate and  
21 transport of NDMA. We know a fair amount about its fate and  
22 transport. Aerojet's been kind of confirming what is in the  
23 literature, that it's water soluble and it tends to migrate  
24 fairly rapidly. I can send you that information.

25 MR. LADD: I would like to learn more about that.

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1 MR. HODGE: If there are no other questions or  
2 comments, last chance. I just want to thank you all very  
3 much for coming and staying to the end. If you would like  
4 to fill out a comment form on this meeting itself, there are  
5 some on the back table. I'm always interested in learning  
6 from the audience.

7 Thank you again for coming.

8 (Meeting adjourned at 9:00 p.m.)

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